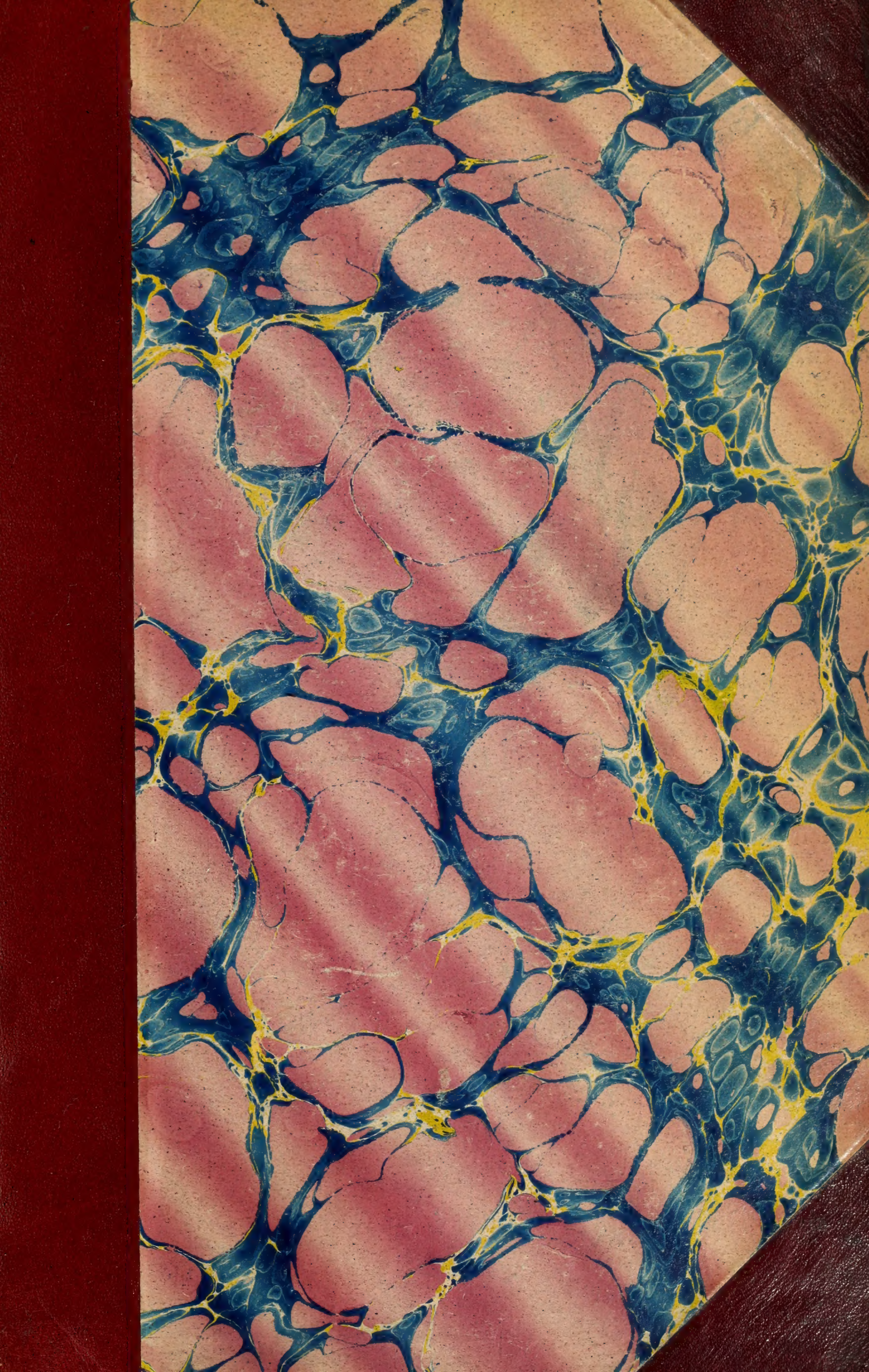

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DENTISTRY IN FRANCE.

BY W. F. KELSEY, BORDEAUX.

A century ago dentistry in this country held a position far in advance of that to which the profession had elsewhere attained. At that time a high degree of skill was frequently displayed in the fashioning of dental substitutes from the ivory of the elephant or hippopotamus—dentures that were moderately serviceable and surprisingly well adapted, considering the perplexities which attended their construction. Filing decayed teeth was the common means of preventing the extension of caries, and transplantation had already been practiced more than a hundred years. The first porcelain teeth were produced here, and for a while the American market was supplied from this source. The first steps toward the system of uniting porcelain teeth to a metallic base by means of a fusible body, which has since been so beautifully perfected by Dr. John Allen, were also taken in France. The impetus which the profession received was, unfortunately, soon spent, and to American enterprise was left the development of the theories then advanced. How well its task has been accomplished is told in language that all can understand, by the thousand useful inventions that the experience of the last half century has suggested. However eminent a position French dentistry once occupied, its former prestige is lost, with little probability of its ever being regained. The present condition of the profession in this country is a reproach to the conservatism of its members and a discouragement to those who emulate for ours the dignity of the learned professions. If dentistry has been removed from the scent of the barber shop, it has only been promoted to the rank of skilled mechanism, and its practitioners to that of master-workers. How much influence the establishment of a dental college at Paris, the dissemination of dental literature, and the humiliation of seeing foreign recognized as superior to home talent, may have in stimulating a reaction from this apathy remains for future years to demonstrate. Among the people, the wealthy classes have been privileged to enjoy the benefits of the skill of several honorable representatives of the American dental profession, who have transferred their habitation, if not their allegiance, to France, and are consequently moderately well informed with regard to the diseases of the teeth and the capabilities of dental science to alleviate or obviate them. The poor have necessarily been debarred from these advantages, and have naturally received little instruction upon these matters, except such as is imparted by designing charlatans, who are ever ready to turn the ignorance and credulity of others to their own profit. The extent to which these worthies play upon the confidence of their dupes cannot better be illustrated than by means of a few brief quotations from advertisements that are circulated in the streets, with the presumption that the contained statements will be received as reliable by a large portion of their readers.

The following is from the circular of a firm, husband and wife, who profess to have attained rare perfection in the art of preserving the teeth by "the new American process": "The most decayed and painful teeth are so improved in condition as to be unrecognizable after two applications of the American process. This process embalms the tooth, even to the alveolus, in such a manner that nothing remains except to stop the cavity to prevent the food from entering, and the tooth is cured forever. In fine, no more extractions with the American process."

Another, after discoursing at length upon what he calls "enamel paste," doubtless celluloid, concludes by asserting "that, besides being ten times superior to gold or rubber, the material is unbreakable, and the insertion of artificial teeth has reached its apogee, for we reproduce nature."

The same writer states that "with our American forceps, I do not hesitate to assert that there are no teeth difficult to extract. There is, however, one thing difficult to find, the skillful man; the man who thoroughly knows the art he practices. That is what is difficult to find."

A third, more eloquent and verbose than his compeers, appeals to the public with a lengthy pamphlet, in which he discusses the various operations performed in his establishment.

Of regulating, he says: "Our method is so simple and prompt in its action that results are attained in a few hours that formerly required days, and we have realized in a few days what once would have required months to accomplish." His artificial plates "are retained by their perfection of adjustment. Their elastic base permits their adaptation over the most sensitive roots; they strenghten loosened teeth and render them useful." For filling he uses "a material that forms with the tooth one body and perfect similarity of appearance. It is a cement that adheres to the substance of the tooth as the Roman cement held to stone, and whose inalterable solidity only increases with time." He concludes by assuring the public "that the wide renown to which he aspires, is not that obtained by vulgar publicity, but, on the contrary, such as manifests itself by real progress and useful modifications, whose demonstration reassures the doubt and dissipates the inquietudes of the most foreseeing mind."

The novelty of some operations that have been presented to my personal notice, merit for them a brief description which cannot fail to interest, if it does not instruct the English speaking members of the fraternity. The first to which I will allude, was performed upon an army officer by the Surgeon of the Regiment, and was described to me by the patient himself, with the assurance that the operation had been successfully performed upon several other members of his company. The operation is intended to relieve toothache, and is performed with a needle, arranged like the instrument employed for vaccination. The *modus operandi* is very simple. The sufferer is placed in a chair, and the needle, heated to a white heat over a spirit lamp, is suddenly thrust a short distance into the external ear, immediately above and inside the lobe. The relief was instantaneous, but the operator would guarantee a cure for only a few months, when the application could be repeated should there be a recurrence of the malady. Another operation, which, though unsuccessful in this case, may contain a valuable suggestion, was an attempt to protect a gutta percha filling with a capping of gold. With the exception of durability this material doubtlessly contains the greatest number of essentials requisite for a perfect filling, but this one fault renders it useless for a permanent stopping, except when it is so situated as to be perfectly protected from the wear incident to mastication.

The covering was fashioned from a thin piece of gold plate and was retained by a platina pin soldered to its inner surface. When slightly heated, the protector could be readily applied, the pin holding it quite firmly in place. The direct cause of the failure was that the lower extremity which had been bent to protect the filling in a badly decayed superior bicuspid, interfered with its antagonist, and was, naturally, soon dislodged.

The condition of French dentistry would, indeed, be deplorable could no good grains be separated from all this chaff. Redeeming features are, however, presented in the study of those systems that have retained favor throughout so many generations. Several mouths have been presented for my inspection, in which, many years before, the file had been so freely used as to seriously disfigure the teeth, after which the filed surfaces were burned with a heated instrument, yet the mutilated organs remained in a state of preservation that equal skill would not have obtained by the process now generally adopted. The disfigurement is a great objection to this practice, but such testimony as these organs, perfect in their imperfection, offer to the efficacy of the file in arresting incipient caries, causes one to reflect whether its very general abandonment has been followed by the preservation of a greater per centage of slightly decayed teeth.

Springs, for retaining full sets, are still very commonly employed, and in exceptional cases sometimes presented by elderly people, with a success difficult to obtain by means of atmospheric pressure. I realize that in defending these operations one risks censure for advocating retrogression instead of progress. However this may be, the tendency of the present age is a restless one: not content with what is good, we too frequently abandon it in search of something better. It is axiomatic that history repeats itself. Fashion, also, is compelled to follow a system of rotation, and, even in our profession, condemned methods of practice have been resuscitated, become popular and found advocates among the most enlightened of our brethren.

ALUMNI ASSOCIATION OF THE PHILADELPHIA DENTAL COLLEGE.

The annual meeting of the Alumni will be held on Thursday, Feb. 27th, at 10 A. M., in the college building, 108 North Tenth street, Philadelphia.

DANIEL NEAL MCQUILLEN, D. D. S.,
Secretary.

TO WHAT SHALL WE ATTRIBUTE THE FAILURE TO EFFECT THE HIGHEST GOOD IN DENTAL PRACTICE?

[Read before the First District Society.]

By Dr. Atkinson.

Professional men are divided into two classes, displayed in the prevailing methods or habits of performance of their special function. Each class claims to be governed by intelligence and honesty. The first gives attention to redemptive work, and never acts until the mischief has been effected, to repair which they then sedulously labor. The second arose out of the observations of failures of the mere "redemptionists" that suggested the possibility of greater good to be hoped for by instituting a system of practice looking toward the prevention of the mischief, thereby excluding the necessity of redemption.

Probably no individual practitioner legitimately belongs exclusively to to either class, and probabiy no one individual is so well informed and endowed as to include all that may be hoped for by persistent, legitimate exercise of both prophylactic and redemptive practice. We are, usually, very ready in finding excuses for our deficiencies, and shifting the responsibility from our shoulders to those of others, whether they be teachers, practitioners or patients. Honesty demands at our hands the correction of every error that is not in its nature incorrigible, so soon as it is discovered to be an error—either in doctrine or practice.

All ability signifies intelligence, and all inability, deficiency of knowledge. The most destructive example of inability is dishonesty—especially that form of ignorance which assumes that it is *impracticable* to be thoroughly honest. All the professional work that needs the excuse, "I guess that'll do," or, "We'll have to make it go," is nothing short of dishonesty, and is dangerous to the growth of the practitioner in view of its liability to become chronic. The very highest advice to pupil or practitioner consists in the instruction to carefully obey the dictates of conscience. In other words, when a case presents that you cannot diagnose, either seek counsel, or wait for the development when this can be done without jeapordizing the interest of the patient.

When you do not know what to do, do nothing but wait.

Dentistry as a profession, originated from the deficiencies in genera medicine and surgery, and is still laboring under the dead weight of this incubus, as kept alive and active by the lack of knowledge on the part of general practitioners, to whom we naturally look for direction in ambiguous cases, complicated by diseases of tissues other than those belonging to the mouth.

It may be asked, how came the writer into possession of this information? The reply is by a long succession of close observations of failures and successes in his own practice and that of his brethren.

Any teacher who is not enthused by a love of truth stronger than the desire for financial success, is not amenable to her clearest revelations. We must not pervert the Scripture that saith, "Seek ye first the kingdom of God and His righteousness, and all these things shall be added unto you," by seeking for the sake of the things that are to be added as the motive of our endeavor, rather than the *righteousness* (right doing), which is the fulfilment of the requirements of truth.

Some of the most severe experiences of my life as a teacher have resulted from a knowledge of this very perversion by those dear to me, made known in various ways. The prevailing one was an expression of willingness to cease to pursue dentistry just so soon as a more lucrative employment presented itself. Another one, so common as to have been the stimulus which prompted me to write this paper, is lack of thoroughness on the part of dentists to put each mouth under their care in complete order up to their highest ideal. So lamentably does this prevail that the percentage not classifiable therewith would fall below five.

Dear pupils, whom I have taught, loved and petted are continually making this mistake, and are always ready with what they esteem as sufficient excuse when I direct attention to the cases suffering from their neglect. Were this neglect confined to the "gutter charlatans," the demand or reform in "upper circles" of practitioners and patients would not be called for. Truth demands that a testimony far from flattering be borne against the practice of some in high repute, who otherwise possess many valuable qualities.

Almost nobody is fulfilling even his own highest ideal in the promptness, thoroughness and completeness of work to be done in the mouths of even his most obedient and appreciative patients.

I have at this time under treatment two notable cases of this form of malpractice, occurring under the care of A No. 1 practitioners, *as reputations go* (one in Boston, the other in New York). One case has lost the attachment of the dental ligament and the free border of the alveolar process in every tooth of an entire set of beautiful teeth, above and below, and was suffering from an epuloid growth on the labial surfaces of the gums of the upper front teeth, of a lobulated character, discharging pus from around the whole mass and between the lobules. Upon the removal of the fungus mass, the roots of the teeth were laid bare, without any intervening alveolar process or connective tissue, these having been absorbed or converted into the morbid growth.

The other case had submitted to the extraction of the right superior first bicuspid in hopes of getting rid of an agonizing toothache, which had continued for several days and nights, rendering the patient fidgetty, nervous and almost unmanageable. The pain not having abated, she was sent by her father to me. Upon examination, I found the pain to arise from suppuration of the outer horn of the pulp of the right superior second bicuspid, which had been filled four years previously with gold. The filling still remained in position. Above the filling decay had proceeded, exposing the pulp, and thus producing inflammation. The filling was removed, revealing a drop of pus, occupying the horn of the chamber above indicated, the removal of which set the patient almost wild. A drop of creosote and oil of cloves was placed upon the exposed portion of the pulp without mitigating the pain. This was removed by bibulous paper, and pure chloroform applied, giving instant relief, which induced the patient to jump out of the chair and make extravagant demonstrations of her ecstatic joy.

After this the pulp was protected by one of Weston's metallic caps, and temporarily filled with gutta percha. Further examination revealed a terrific example of *pyorrhea gingivitis* (flow of pus from the gums). The gums covering the entire alveolar border or variable portion of the maxillae (superior and inferior) were "raw as beef." The patient said she had not taken a comfortable meal for two years, and that she had been four years under the care of the same dentist.

It is impossible to describe in words the appearance of this mouth. The entire roof, from incisors to third molars was swollen and lobulated with tomato-like compartments of enlarged gums, discharging offensive pus, as before stated. The fissures between these lobules were from one to four or five lines deep. By pressing the gums away from the teeth, fully one-half of the length of the roots were exposed. The case was put under the aromatic sulphuric acid treatment, and is doing as well as could be hoped for in the time (ten days) it has been in hand.

In the same mouth a very large loose gold filling occupied a ragged cavity, involving the grinding and anterior surfaces and the pulp chamber. Upon the removal of the spongy mass of gold (which was anything but pleasant to the smell), pellets of cotton were exposed, occupying the butt of the canals in the root. When the cotton was removed from the base of the anterior buccal root, a ropy, inky fluid poured forth, which surprised me. The patient then remarked: "There, my tooth is now relieved from a sense of pressure which has been felt there for a long time." A professional brother from the West being in the office at the time, I called his attention to the inky appearance of the exuding fluid, when he promptly attributed the dark color to the presence of some iron instrument which had been broken off and left there, having been converted into sulphide of iron, mixing with the discharge, giving the inky appearance—this having been my previous opinion.

"For if they do these things in a green tree, what shall be done in the dry?"—Luke 23, 31.

These and similar examples call loudly for a new deal in teaching, in study, and in practice. The burden of our cry should be, "Oh, for a power to mäke us more thorough, more honest, more patient, persistent and faithful to our highest ideal."

THE PRETERRE CASE.

WASHINGTON, January 17, 1879.

Messrs. JOHNSTON BROS.—GENTLEMEN:

You will do me a favor, and, I think, *the profession a great one*, if you will publish in THE MISCELLANY the decision of Judge Wheeler in the Preterre case, as given in the "Patent Office Official Gazette" of Sept. 3d, 1878, together with the fact that the Goodyear Dental Vulcanite Company has filed in the Supreme Court of the United States an appeal from the decision of Judge Shepley in the *Davis case.*

Yours truly,

R. FINLEY HUNT.

DECISIONS OF THE COURTS.

U. S. CIRCUIT COURT—SOUTHERN DISTRICT OF NEW YORK.

Goodyear Dental Vulcanite Company and Josiah Bacon vs. *Adolphe P. Preterre.*

(In Equity—October Term, 1877.)

To repair a dental plate made according to the Cummings patent (Reissue No. 1,904) by the substitution of a new for an old portion, with teeth imbedded, is an infringement of the patent.

Such repairs, which, in fact, practice the entire invention (the patent not being confined to any size or shape of plate), distinguished from those cases wherein defective machine parts are corrected or changed without damage.

So, too, it is an infringement of the patent if the teeth be imbedded in rubber according to its terms, although the remaining portion of the base-plate be made entirely of gold.

Celluloid and rose pearl held to be the substantial equivalent of the hard rubber or vulcanite in all essentials necessary to the successful practice of the invention, and their use a violation of the rights under the Cummings patent.

The facts established by the evidence in relation to such equivalency being different from those appearing in *Goodyear Dental Company* vs. *Davis et al.* (12 OFFICIAL GAZETTE, 561), that case not deemed to be in point, although it declared the non-equivalent character of celluloid.

WHEELER, *J.*:

This bill is brought for relief against alleged infringements of reissued patent No. 1,904, originally issued to one John A. Cummings, and now owned by the orators, for an "improvement in artificial gums and palates."

The cause has been heard upon the bill, answer, replication, proofs, and argument of counsel. The validity of the patent has been settled as against another party in *Goodyear Dental Vulcanite Company* vs. *Smith* (93 U. S. Sup. Court Rep., 486), and on this argument it is not denied by the defendant's counsel but that it is valid here.

It appears that the defendant operated under a license from the patentees up to January 1, 1871. The only questions made are as to whether he is shown to have infringed since that date. It is claimed by the orators that he is shown to have done so, by making hard-rubber plates of teeth of the materials and according to the mode described in the patent; by replacing parts of such plates of teeth in like manner; by making such plates mounted upon gold plates, and by making plates according to that mode of celluloid and rose pearl. The defendant denies making any new sets of hard rubber, and claims that the other matters charged are not infringements.

I. Upon the evidence it sufficiently appears that he has made a few plates of hard rubber within the time in dispute, but not many—perhaps four, five, or six. The exact number must be settled by the master. All the testimony may be true, if he has; if he has not, some of it must be corruptly false. His conduct about directing the employes to call the material composition, when it is not known by that name, and in not appearing to testify himself in explanation, is more consistent with a use by him of the material known to be unlawful than the contrary. On the whole, this finding, after placing the burden of proof of infringement upon the orators, is the most satisfactory.

II. The patent seems to be for a plate or set of teeth formed in a particularly specified mode of material having certain qualities. The extent of the plate in the mouth of the wearer, either as to surface of the mouth covered or the number of teeth in the plate, is not made important. It covers one tooth, with plate sufficient for it, or more teeth with plate enough for them, according to the requirements of each particular case. It is for so much plate as is needed to hold as many teeth as are wanted. If any plate, formed and holding any teeth according to the patent, is made, the patent is infringed. The defendant's witness Fish, at cross-questions 62 and 63, describes the mode of making the repairs complained of. By his description, which is not disputed or varied, it appears that a part of the plate to be repaired is cut away and replaced by new holding teeth imbedded in it, made exactly as the patented plate is. So much of the plate as is formed in that way is an infringement. It is said that the presumption is that the wearer of the plate has a right to have it repaired, and that it is no infringement to repair it. But, whether that is so or not, this replacing is not strictly a repair, like replacing a part of a machine, expected to be worn out and intended to be replaced, in the same machine. It is a new manufacture of itself, of the kind patented, embracing in itself all parts of the patented combination. The part added includes the patented product as much as if it were used alone to the same extent, and as much as the part added to would if unauthorized. It would be as correct to say that a new plate is made out of the old and new materials as to say that the old plate is repaired with the new materials. More new may be added than remains of the old, or less: the proportion is not important. To the extent of the new: when new plate holding teeth is made, it is new manufacture, covered by the patent, and an infringement.

III. The object of the invention seems to be to fit and attach artificial teeth to the mouth. The defendant's gold plate, mounted with the rubber one holding teeth, is for the same purpose. It appears from the unqualified testimony of the defendant's witness, Fish, at folio 402, as well as from the appearance of the exhibit, that, so far as the rubber plate and the teeth are concerned, it is made precisely as rubber plates not to be so used in mounting gold plates are—that is, exactly according to the patent, except that the rubber may not be made to extend so far into the mouth as it would be if there was to be no gold plate. But, as before mentioned, the extent of the plate is not material to the patent. It is the plate formed and holding teeth in the prescribed manner that is its distinctive feature, extending so far as necessary in each particular case. With the gold plate is the same rubber plate, formed and holding teeth in the same prescribed manner, extending so far as is necessary under those circumstances. The rubber plate is used to attach the teeth to the mouth and hold them in place, by being attached to the gold plate which goes between it and the mouth, instead of touching the surface of the mouth itself. It attaches the teeth to the mouth in the same manner, although not so directly, as without the gold. The patented product is used for the purposes of the patent so far as it is used at all. In that use the defendant employs the whole of the patented invention by taking it to add his gold plate to. He may have improved it, or may not, by that addition. But, whether he has or not, when he so uses it he infringes the orators' rights.

IV The defendant is shown to use celluloid and rose pearl in the manner described by the witness in making dental plates. He relies largely upon the decision in *Goodyear Dental Vulcanite Company* vs. *Davis*, and sixty-seven other like cases, by the late learned Circuit Judge, Shepley, in the District of Massachusetts, in support of the position that the use shown in this case is not an infringement. If that case was exactly like this, it should and would have great and controlling weight in the decision of this, both on account of the eminent learning and ability of the court making the decision, and because the same rule ought to prevail throughout the country in respect to the infringements of the same patent by the same means, as well as upon other questions in respect to other subjects, as was so well expressed by the late learned Circuit Judge, Emmons, in *Goodyear Dental Vulcanite Company* vs. *Hillis* (7 PATENT OFFICE GAZETTE, 44.)

But this case, upon the evidence here, is not like those before Judge Shepley, as the facts are stated in his opinion to have appeared there.

The patent may well be considered to be established as valid everywhere, but whether parties have infringed it in particular cases must depend upon the proof in each case. The owners of the patent may be able to prove infringement in one case and not in others, but proving it infringed in one case it will not show that all others charged to be infringers are so, nor will failure show that none others charged are so. It is only when the facts of the cases are alike that one ought to control another.

In those cases the question was whether the patent for a plate of teeth made of rubber, compounded with sulphur and subjected to heat to to harden it, would be infringed by plates of teeth made of celluloid, shown to be "a new material discovered and patented since the date of Cumming's invention," in the manipulation of which "the process of making a set of teeth composed of the plate, the teeth and gums is an entirely different process from that described in the Cummings patent, when compared with that part of the Cummings process which was new in the state of the art, and the novelty of which part gave to the Cummings process, when considered as a whole, the ingredient of novelty and patentability." When it was "not placed in the mold in a soft, plastic condition, a little at a time pressed in with the finger or in any other convenient way, but in a hard, rigid condition, like horn or bone or ivory," and "then subjected to heat, not to vulcanize or harden, but to soften it." And which, "afterward, on being cooled or restored to its orginal temperature returns to its original condition as a hard substance as when first placed in the mold," from which it appeared "evident to the court that the use of" the celluloid in the manufacture of sets of artificial teeth, as practiced by those defendants, and the manufacture itself, differed "as much, both as to process and product, from the process and product described and claimed in the Cummings patent as that process and that product differed from the previous manufacture which existed before Cummings invention, and were successfully relied upon as anticipating it." In this case it appears from the evidence that the celluloid and rose pearl in use by the defendant, whether actually the same as that material in that case or not, were well known at the date of that invention (folio 392), and from the testimony of defendant's witness, Fish, that in use it is softened in boiling water and made plastic before it is put into the molds (folio 313), and from the defendant's witness, Parmelee, that vulcanized rubber is soft when hot and becomes hard by cooling (folios 389; 390), and also from the witness, Fish, that the means employed for fastening the teeth to the plate are the same in respect to each substance, and that when the celluloid plate is completed its structure is precisely the same as that of a vulcanite dental plate, except that the base of one is made of celluloid and the other of vulcanite, and that they are so much alike that any one might mistake one for the other, and patients seldom notice the difference (folios 308, 309).

It is obvious from this statement that this case, upon its facts, is radically different from those, and should not be controlled by the decision there further than the same principles are applicable to both. That decision does not seem to proceed exactly upon the ground that there could be no equivalent for vulcanite, but rather upon the ground that what was claimed to be an equivalent was not, in fact, so.

The invention seems to be of a combination in a dental plate of the plate proper, holding the teeth imbedded into it and made fast in the mode described, with the teeth themselves. The material of the plate is of chemical formation, but the operation of the plate when formed is mechanical. The teeth are the main object. The plate is for the purpose of holding them in the right position in respect to the mouth. It is held in place itself principally by atmospheric pressure, and holds the teeth in place by its mechanical strength. The rubber plate is very useful for this purpose on account of its lightness, slightly yielding rigidity, and capability of the material for being fitted into the molds when soft, and becoming hard in exactly the shape of the molds without shrinking. The celluloid shown here appears to have the same qualities and capability in these respects. The mode of taking the impression of the mouth and making molds for the plate and teeth of plaster by using wax was old. Rubber, the mode of vulcanizing it, and vulcanite itself, were old. Molding vulcanite into shapes wanted was old. Cummings invented combining it, when hot and plastic, with artificial teeth, by molding it about them in their proper position, so that the whole would be in the required shape and relative position in one solid piece, when the rubber should become hard. Celluloid was old. The defendant, with molds made by the same method as Cummings's, combines that with artificial teeth by molding it about them when hot and plastic, so that the whole will be in one piece in the required shape with the teeth in their proper position when it becomes hard. And when the products of these processes are done they are so near alike that persons using them do not distinguish one from the other. The celluloid is for this purpose clearly the mechanical equivalent of the vulcanite. Chemically they are in some respects different, but in all that are of any importance, for the purposes they are here wanted for, they are the same. They burn differently, but they are not wanted for burning. They come to the plastic state in which they can be put into the molds by chemical and widely different processes. The process by which they are converted from masses in that state into finished dental plates so inheres in the product that it is said to give distinctive character to it. That process begins with the molding. The point is not whether the substances were ever equivalents for these or any other purposes before, but whether they are equivalents for this purpose then, and it seems that they are.

It is said by Mr. Justice Clifford, in *Gould* vs. *Rees,* 15 Wall., 194, and 22 Wall., 15, in *Gill* vs. *Wells*, that inventors of a combination are as much entitled to equivalents as the inventors of other patentable improvements, if the equivalents were known to be such at the date of the patent. Judge Shepley, in *Goodyear Dental Vulcanite Company* vs. *Davis*, before mentioned, either intentionally or inadvertently, said in respect to the same thing, the date of the invention. Some question has been made about which date controls, if either does absolutely. Perhaps it is the date of the patent, because the patent is a grant, and as such must speak from its date. But whichever date should control, or whether either should, is not material in this case, for the evidence is full that celluloid and rose pearl, with their molding and other qualities useful to this manufacture, were well known at both dates.

Under the reasoning of the court in *Goodyear Dental Vulcanite Company* vs. *Smith* (93 U. S., 486), in which the validity of the patent was held, if Hawes there mentioned had been shown to have used celluloid or rose pearl, as the defendant now uses them, instead of tin, as he was shown to have used that in making dental plates, the patent could not have been maintained. He would have been entitled to the patent instead of Cummings. Celluloid itself may be patentable and patented, but the use of it in this manner in the formation of dental plates could not be in the light of Cummings's invention. And whether the invention of this use of them would be patentable in view of the other patent is one accurate test of whether it is an infringement of that patent. (Curtis on patents, § § 321, 332, 333: *Walton* vs. *Potter*, 4 Scott, N. S., 91.)

Let a decree be entered for an injunction and an account in respect to these infringements, with costs, according to the prayer of the bill.

THE VIRGINIA STATE DENTAL ASSOCIATION.

The Ninth Annual Session of the Virginia State Dental Association was held in Wilkinson's Hall, in the City of Richmond, commencing Tuesday morning, December 10th, 1878.

At the hour appointed, by reason of the heavy rain falling, it was deemed best to adjourn until 4 o'clock in the afternoon, so as to allow a fuller attendance, at which time the Association was called to order. President J. HALL MOORE, of Richmond, in the chair.

The minutes of last meeting were read.

The Secretary read letters from Ex-President W. W. H. Thackston, and many others, expressing regrets at not being able to be present to join in annual reünion with their co-laborers in pushing forward the interests and objects of the Association, which are to cultivate the science and art of dentistry.

Dr. SCRIBNER stated that Dr. Norris was detained by illness.

Prof. HARRIS, of the Baltimore Dental College, and Mr. J. W. Selby, of Baltimore, were introduced to the Association and invited to seats.

The Executive Committee reported the following persons for active membership, all of whom were duly elected :

Dr. J. W. Tucker, of Petersburg ; Dr. Henry C. Jones, of Richmond ; Dr. Jno. Hartman, of Petersburg ; Dr. Jno. N. Webster, of Norfolk ; Dr. Edgar Hartman, of Richmond.

Prof. HARRIS was elected to honorary membership.

Executive Committee reported that homes had been provided for all that had applied, also that arrangements had been made for clinics.

On motion of Dr. Keesee, the annual address of the President was read, and on motion of Dr. Scribner the address was received and referred to a committee. Drs. Scribner, Cowardin and Chewning, were appointed as the committee, with instructions to report as early as possible.

Dr. THOMPSON moved that the hours from 9 to 11 be appointed for clinics ; 11 to 2 for morning session ; 4 to 7 for afternoon session ; which was adopted.

Prof. HARRIS and Dr. COWARDIN were appointed to conduct the clinics for the following morning, after which, on motion of Dr. Wood, the Association adjourned.

WEDNESDAY MORNING SESSION.

The Association was called to order at 11 o'clock, after having attended the clinic at Dr. Wood's office, conducted by Prof. Harris.

President MOORE in the chair. The minutes were read and approved.

Dr. T. S. WATERS, of Baltimore, was introduced and invited to a seat.

On the call for reports from committees, the Publication Committee reported, that after consultation, it was deemed best not to have printed the 2000 copies of the Dental Bill to regulate the practice of dentistry in the State, as was ordered at the last session.

Report received and passed

Indulgence was granted Committee on Operative Dentistry until further time to report, and on motion, Prof. Harris was added to the Committee.

Prof. HODGKIN, of the Committee on Mechanical Dentistry, not being present, on account of sickness, on motion the subject was taken up. Dr. Scribner opening the discussion by asking the opinion of those present concerning the use of celluloid. He always heard of his failures, but the successful patients, being satisfied, never returned to report. His practice was confined almost exclusively to young patients, and so had but little mechanical dentistry to do. He asked Prof. Harris what was the general advice given students at the College. To which the Professor replied that they did not advise the use of celluloid. In duty to students they taught them the use of all materials, but the young practitioner could not afford to risk his reputation by the use of a material that will warp, and will often disintegrate after being worn twelve months, and is, consequently, so unreliable. It might suit plain, but seldom gum teeth: it would undergo a molecular change: turn dark and soften on the surface, and, in the end, would finally give way: only a few maintained their consistency. In some cases, could scarcely tell what it was; would not even advise its use for temporary plates. On the other hand, the rubber would stand for years, and, he thought, was easier to work.

Dr. WATERS' experience did not agree with Prof. Harris'. He preferred the celluloid to rubber: thought it saved time because, if the rubber was at all hastened, it would be hard and brittle. He worked the celluloid in vapor of glycerine, and after getting the plate down, fifteen minutes afterwards, dipped in cold water and cooled thoroughly before removing pressure. Silver and celluloid worked admirably together, but as the silver corroded he could only advise it on accouut of its cheapness.

Dr. Thompson said he had worked celluloid for four or five years and had found it to be all that he wanted ; had no inflammation of the mucous membrane, and never had a gum block break ; worked it with steam, and decidedly gave it the preference over rubber, but took care to let it stand as long as possible to cool off.

Dr. Mercer found it to stand equally as well as rubber.

Prof. Harris stated that, with all due respect to the opinion of those who had spoken, his mind was not changed, as he had yet to see the first plate that had not changed in color after being worn a few months. He had even known them to change in twenty-four hours, and the only thing that could at all be said in favor of celluloid was that it was a rather better conductor than rubber. He always advised the patient to remove a rubber plate from the mouth at night,and thus tendency to inflammation was relieved. The material was not always to be blamed for the soreness of the mouth, as some patients kept their dentures in a less cleanly condition than they should.

Dr. Chewning had made extensive inquiries in his city and had yet to find the first one who was square with Rubber Company who did not prefer rubber.

Dr. Waters thought differently, and advised never to polish a celluloid plate beyond the use of sand paper.

Dr. Mercer said he was not in the clutches of the Rubber Combany, but yet gave celluloid the preference.

Dr. Keesee said that he was very sorry that his experience in the use of celluloid had compelled him almost entirely to abandon it. He found no trouble in working it, and obtained accurate fits and all that was, perhaps, desirable in the outstart, but yet found that in a very short time the plates would turn most miserably dark (thus presenting a very unsightly appearance where the gum would show), and had found them to wear so much that in a few months the teeth could, by slight pressure, be shoved from their place, and hence, for the welfare of his patients, he had gone back to the use of rubber.

Dr. Cowardin did not think celluloid was going to give satisfaction in the long run. Did not believe that any of the substances now in use for dental plates, if well fitted to the mouth, would give rise to inflammation unless there is a predisposition to inflammation, which arises from some derangement of the alimentary canal.

Dr. Moore, asked if discoloration did not also occur with rubber. To which Prof. Harris replied, yes ; but that it was only a stain on the surface, and not a change of plate itself, as was the case with celluloid.

Dr. Moore did not think that celluloid was as durable as rubber, but all mechanical work was *so cheap* that patients ought not to complain. No dentist ought to guarantee a plate to last forever. He used celluloid with satisfaction, and would much prefer it in his own mouth, as he thought it more agreeable. Even gold would produce inflammation, and no mouth *could* be healthy where the plate was worn day and night, and not in addition kept perfectly clean.

Dr. R. Finley Hunt, of Washington, was introduced and invited to participate. He agreed that celluloid was, perhaps, more pleasant to wear, but there was not the certainty of obtaining as favorable results as by the use of rubber. If a *good* plate of celluloid was obtained, he thought it preferable. He still continued the use of dry heat, and had no trouble in warping. Being allowed to digress, he spoke at length upon the legal aspect of the case of the Rubber Company versus the dentists.

On motion the subject of mechanical dentistry was passed, and the Association adjourned to meet at 4 o'clock.

Afternoon Session.

Dr. T. S. Waters was elected an honorary member.

Dr. Chewning, from Committee on Dental Literature and Education, presented a lengthy report, prefacing his remarks by stating that the report was written before his connection with the Baltimore Dental College.

Report was received and discussed at length, especially by Dr. Wood, who felt much gratified in hearing such a report. He believed in specialities and that medical colleges were not qualified to teach dentistry, together with everything else.

Dr. Scribner moved a vote of thanks to Dr. Chewning, which was adopted, and on motion the subject was passed.

Dr. N. M. Burkholder, from Committee on Dental Pathology, presented a most welcome report, as did Dr. Thompson, from the same Committee. The reports were received and discussed by Drs. Hunt, Cowardin and Wood, until the hour of adjournment.

Thursday Morning Session.

The minutes of last meeting were read and approved. The subject of Dental Pathology was resumed and occupied the greater portion of the morning session, a synopsis of which only could be given, which would not do justice to the great interest manifested and participated in by so many members present. Quite reluctantly the subject was passed, and, on motion of Dr. Scribner, the election of officers was ordered as the first business to claim the attention of the afternoon session.

Dr. SCRIBNER next addressed the Association on the subject of Plastic Fillings *versus* Gold Fillings, this new departure feature being the one that seemed to disturb the dental profession most at present. He related that a few years or possibly months ago, some of the leading members would only use gold and never a plastic filling, but for his own part he always found that he had to use discretion.

Dr. HUNT deprecated extremes ; had to often adapt ourselves to the pecuniary circumstances of our patients. Did not like exactly the antagonism of plastic filling *versus* gold. Amalgam, he thought, had its many advantages, especially that of producing the hardness so often found beneath a filling Thought the same care needed for plastic as for gold fillings. For temporary filling he preferred the osteo-plastic to gutta percha. Dr. Cowardin had found tin preferable for buccal cavities.

Prof. HARRIS thought the failures resulted from not always understanding the nature of the case. If possible, he preferred gold, but often excess of saliva would govern what material to use. Did not agree with Prof. Flagg in his new departure theory. Thought all should study thoroughly the nature of gold. Regardless of material, we all had our failures to lament. He was an advocate of using the very softest preparation of gold, but at the same time also was eclectic in choice of materials and appliances. Did not like os-artificial for approximal cavities, but preferred gutta percha—in the use of which he always tried to avoid an excess of material. In a near approach to nerve he used the softest gutta percha, never wishing to have anything the least escharotic.

Dr. COWARDIN did not find os-artificial to suit for cavities with even nearly exposed nerves.

Dr. SCRIBNER had found much service from the use of os-artificial.

Dr. JONES had much pain in the use, but it soon became comfortable,

Dr. SMITH spoke of his experience being favorable ; using, in connection, a small piece of rubber dam.

Dr. CHEWNING liked for such purposes Weston's non-irritant cement.

Dr. THOMPSON said the pain, he thought, could be avoided by using creosote with the oxide of zinc, and capping this with the oxychloride of zinc.

Dr. KEESEE had used Dr. Thompson's method, in addition, using a few folds of bibulous paper moistened with creosote just over the nerve, then following up with the other preparation.

As Prof. HARRIS desired as little irritation as possible, he sometimes used a solution of gutta percha. He always gave the nerve a chance before he would destroy it. Had, at times, found the restoration complete, but it would take from eighteen months to three years ; he would never insert a permanent filling at once. Did not like the too free use of gold in the front teeth for children, but preferred, whilst the teeth were so vascular, a plastic filling of gutta percha stopping, or its equivalent. Had experimented with the shrinkage of amalgam and found it extremely difficult to introduce a perfect amalgam filling. If used perfectly dry, it was very difficult to work satisfactorily, nevertheless, it was our duty to persevere.

On motion, the regular order of business was suspended to allow Dr. Hunt to give in detail the legal status of the case of the Goodyear Dental Vulcanite Company *versus* the Dentists.

After which Dr. Thompson offered the following resolution, which was adopted :

Resolved, That the Virginia State Dental Association sympathize with Dr. R. Finley Hunt in his efforts to set aside the patent for the use of vulcanite, now claimed by the Goodyear Dental Vulcanite Company, and recommend that the dentists throughout the State render material aid to Dr. Hunt in his efforts to set aside the patent.

AFTERNOON SESSION.

Association called to order at 4 o'clock.

According to previous order, the Association proceeded to ballot for officers for the ensuing year which resulted in the election of:

Dr. J Hall Moore, of Richmond, President ; Dr. J. W. Scribner, of Charlottesville, 1st Vice-President ; Dr. S. H. Henkel, of Staunton, 2d Vice-President ; Dr. H. C. Jones, of Richmond, 3d Vice-President ; Dr. J. F. Thompson, of Fredericksburg, Treasurer ; Dr. Geo. F. Keesee, of Richmond, Recording Secretary ; Dr. L. M. Cowardin, of Richmond, Corresponding Secretary ; Dr. Geo. B. Steel, of Richmond, Reporting Secretary ; Judd B. Wood, of Richmond ; W. W. H. Thackston, of Farmville ; W. E. Morris, of Charlottesville, Executive Committee.

Dr. COWARDIN moved that further discussion of the subject of operative dentistry be dispensed with, which was adopted.

On motion of Dr. Scribner, the regular order of business was dispensed with so as to allow the selection of place for holding the next Annual Session of the Association, and Charlottesville was selected; and on motion of Dr. Cowardin, it was determined that when the Association adjourned it adjourn to meet on the 3d Tuesday in August, 1879.

On motion of Dr. Steel the Committee on Dental Physiology was excused and subject passed, as also was that on Dental Appliances.

The Committee on President's address presented their report and asked that the following subjects, touched upon in the address, be more fully discussed:

1st. That part referring to the cultivation of a brotherly feeling between the members of the profession.

2d. That part referring to the Dental Colleges and the duty of the Association to help them to do the work of turning out well qualified men.

3d. That part referring to membership in the Association.

Which subjects were discussed at length.

Dr. Wood offered the following amendment to the Code of Ethics:

ARTICLE. II—Sec. 3d. It is unprofessional to advertise by other means than a card, giving name, title and address. Which he asked to be laid over until next session of the Association.

Dr. Scribner offered the following resolution, which was adopted:

Resolved, That a committee of three be appointed whose duty it shall be to have two thousand copies of the Dental Bill printed and send the same, together with Dr. Thackston's Address, to the dentists in the State, with a memorial for the signature of the public, to be returned to said Committee to lay before our Legislature at its next session, in December, 1879.

A Committee was appointed, consisting of Drs. Thackston and Moore, those two to select the third.

The Association then adjourned to meet in Charlottesville, on the 3d Tuesday in August, 1879.

PROCEEDINGS OF THE FIRST DISTRICT DENTAL SOCIETY ON THE EVENING OF TUESDAY, DEC. 3D, 1878.

Incidents of Office Practice.

Dr. Mills: I have, I think, a case of interest, because I don't think that we come in contact with that sort often; if we do, we don't recognize the fact.

It has been considered for a long time impossible that we should have an abscess on a tooth if the pulp is living. I have two cases in my mind which have been under my care for sometime. One is a gentleman and the other is a lady; each had an abscess on the root and the pulp alive. I have tested them and found the pulp living in the buccal root while the pulp was dead in the palatal root. What I will do with the live pulps is to be determined in the future.

Dr. ABBOTT: I had a case not long since, of a lower molar where the pulp in the posterior root was alive and on the anterior root there was an abscess discharging. I cut away all the dead portion of the pulp until I came to life, and then capped that over: and it has been now quite a good many months in good condition. I treated the abscess through the other root and cured that. That is in a young lady's mouth, and is doing very well. I had another case, not so difficult; I capped that with oxychloride of zinc. If a pulp ever was alive, this was alive. I recollect a case, now, of a lady about twenty-two or twenty-four years of age, where the tooth was broken off, and I amputated a portion of the pulp. I saw the lady last Thursday, and everything is all right so far; the pulp is just as alive as anybody's pulp.

I had a case of a little child, that came to me seven or eight years ago, with the pulp exposed in the upper second molar of the first set—deciduous teeth, and very badly exposed too. In that case, it was difficult to do much with it, but I managed to put a pellet of cotton over it saturated with creosote and filled in the sides, bridging over, with Gutta percha stopping. The boy, two years after, in eating, knocked off the gutta percha filling, and, to my surprise, I found that pulp just as alive as it ever was, and I capped it over again in the same manner exactly as after cutting around it about two years ago, and he never has had any pain in it since. Nothing but creosote and a little pellet of cotton over it and bridged over with gutta percha. Since that, I would remark, I have in several instances, having noticed the way this case worked, treated teeth in the same way for children, and I find I can get along with that much better than I can with any other attempt at any other kind of capping, or anything else that I have ever seen or thought of doing. I have had several cases since that, which are doing very nicely, indeed, but this one struck me as a little peculiar, because I had seen the pulp.

Dr. ODELL: I am going to "cap" that. I had a case, not long since, where the superior right first molar was split from angle to angle of the crown, the fracture going down through the root so as to expose the pulp; the pulp living. The gentleman came to me, hoping I could do something, but, of course, expecting to have it extracted. Well, my first thought was *forceps*, and my second thought, was *salvation;* and I accomplished the salvation in this way: I first tied up the tooth with floss-silk, just wrapped it up, as you have seen the ends of wine-casks hooped—those which come from Europe—hoops all the way along. And, after a week or so, I found the pulp still living, and then I concluded it would be worth while to try something else. So I took off my silk hoops and put on a golden one: platina, with solder flowed over it, of course, and drove that down as if it were on a barrel. Then I filled the cavity that was remaining where it had fractured in the crown; and that tooth lasted all right. It was finally extracted with the pulp still alive; there is a gentleman here who did the work, I believe, Dr. Slocum; and the tooth was lost simply from accumulation of tartar. The hooping, whilst it saved the pulp alive, did not admit so well of his cleansing the tooth, and he was rather tender with it. The tartar worked way up on the root, and it had to be extracted from that cause. I have that tooth in my possession, and will show it to you sometime.

Dr. Tenison: I have a case that is rather interesting. A gentleman, who had been a patient of mine for several years, and about four years ago was taken with a violent pain in his right ear, was under his physician's care for sometime and couldn't get any relief at all. He was an active man of business. After this pain continued for sometime, he began to feel a little tenderness in the lower second molar,—came to me to see if that could be the cause of his pain in the ear; he had felt nothing there for some two weeks, and then he felt this pain in the ear. I examined the cavity and found a small filling that had been put in there two or three years previously. I found on the surface filling the nerve was not at all exposed, and I told him that he had better take a dose of quinine and see what effect that would have. But being under a homeopathic doctor he objected to that, and he went back under his physician's treatment, and I didn't see him for several weeks, when he presented himself again. Then I found he had a severe abscess under the angle of the jaw, and I found that this was opening under the lower molar tooth, and I concluded the tooth was dead. Talking about saving pulps—this was such a case that I don't know how the pulp could possibly have been saved, and I merely lay the case before the Society because there was something which followed it. I looked into the tooth and found the pulp dead, and so announced to the gentleman, and he was so uneasy about it, fearing a recurrence of this abscess, that he insisted upon the extraction of the tooth. I objected to it: and, without my knowledge, he went and had the tooth extracted. About two months ago the same gentleman came back to me with a pain in his left ear; he had suffered that way for several days and could not attend to his business, and he complained of having a little tenderness in the second anterior molar on that side. That tooth I filled myself, about five years before: there was a good thick layer of bone over the nerve, and I could not understand why he should have this trouble. I made applications of aconite and iodine. It gave no relief, and the man was in agony the whole time. I concluded to remove that filling and drill into the tooth and see what condition it was in. I did so, and found that there was a slight sensitiveness in the nerve, and it was evidently in a congestive state. I killed that nerve and the man got relief at once. That is about six weeks ago; and I then put in a temporary gutta percha filling. I saw him three days ago, and he has not had any pain since, and I propose, in a little while, to re-fill that tooth.

I merely lay this case before the Society, and desire to know if there is any other treatment that could have been adopted to relieve that man and save that tooth alive. I did the best I could. It seems to me something strange, in this case, that on the right side the third molar had been extracted, and on the left side he still has the third molar, and this trouble passed from that tooth into the second molar, and the third molar is entirely free from any pain, and also, the pulp is alive.

Dr. ATKINSON read a paper entitled, "To what shall we attribute the failure to effect the highest good in dental practice?" (see page 5).

Dr. C. E. LATIMER: I am ashamed that I belong to such a profession, but I wish to enter my protest against using the language of patients, and believing that patients always tell all the truth about these matters. It is absurd, I would say in passing, to think that any first-class dentist, even in Boston, (so far away from New York), should have patients with teeth in that condition, in the condition of either one of those mentioned in Dr. Atkinson's paper, having constant charge or supervision over such teeth. It is too ridiculous to think of for a moment; no such cases exist, even among the gutter-snipes. I don't care how low a man may be in the profession, if he had uniform charge of such teeth he would have them in better condition. We all hear of patients telling about such and such an operator performing such and such an operation, and we know how ridiculous their statements are—even very intelligent patients—we know how mistaken they are in regard to times. They say how such a tooth was treated, and in a few months afterwards the filling was put in: or, perhaps, they will say the next day, the filling was put in. When, if it is our case, we go to the records and find that instead of being put in the next day, it was treated, perhaps, for a month before it was put in. The patients may be honest in their own minds, in making these statements, and think, Well, it was about the next day they came and the filling was put in. Now, I want to enter my protest against bringing in the statements of patients of other parties into societies of this kind, or, when talking among ourselves, bringing in the statements of patients which are prejudicial to the character of a dentist. I don't believe what my patients say, unless it is verified by my books. When they are talking honestly to me to the best of their recollection, I don't believe them, unless their statements are verified by my books; and I am very careful not to allow my mind to be prejudiced against fellow-practitioners from the statements that any patients may make to me, for I know they are so mistaken: I see it so many times in my practice. I don't want to believe anything unkind or uncharitable of a practitioner merely from the statements of a patient. I have said this to dispel this aspertion upon the professional character of first-class practitioners in New York and Boston—with all due deference to Dr. Atkinson—for I know just how patients talk.

Dr. Atkinson: I will simply reply to that, without going into a discussion at all, that the words are religiously true and can be verified by any kind of ordeal that Dr. Latimer or any other doubting brother who may have a weak side, desires. Every word is true in that paper, and can be verified to the last extent, and the individuals are known. I have not spoken of those cases for anything but for the purpose of awakening the brethren to the importance of thoroughness and faithfulness, and not having these half-hour appointments and short sittings, and going ahead with patients patchety, pitchity, higlety, piglety. That kind of practice is really destroying the value of our body to the world.

Topic of discussion for the evening: "Pivoting Teeth."

Dr. C. M. Richmond, of San Francisco, addressed the Society by invitation: Mr. President and gentlemen,—I brought some of my models to-night, and the gentlemen can see them now. These are a couple of rough models [presents them to the chair] just from the blow-pipe, and filled up, but they show the bicuspid, the crown upon the root, and the central incisior is ready for adjustment. It is a nice piece of dental mechanism, which completely covers the ground for pivoting teeth, in my opinion. If you have a pair of pliers the bicuspid can be taken apart, and the manner of applying the gold and also the method of attaching it, can be seen. The process of construction is a peculiar one, but, by seeing one made, an operator can accomplish the result successfully.

Dr. ODELL: While this case is being talked about, another gentleman present offers a tooth for examination, which he requests opinions about according to the question you see written there. Will Dr. Richmond please explain how, when you have your crown to a bite, it is made to come so that the screw will fit the nut?

Dr. RICHMOND: Yes, sir. You want to know how that is accomplished. Well, you notice there is a hole through the top of the crown, and in driving that to its position, the surplus material, if there is any, will come out through that hole. There is a little wire that is inserted into the nut in the head, and as this is slipped over, the gold wire remains in the exact position, and after that is crystallized by removing the gold wire, you have a canal ready for the insertion of your screw, and it goes into the nut without a particle of trouble. I can take these operations and make them in an hour and a half, or two hours at the outside. I claim that this is strong enough if it is filled up with gutta percha stopping. I will give the gentlemen the process of construction as near as I can: still, if they saw the operation they would understand it much better. In the first place, I take an impression of the root, if it is in shape so that I can take an impression: if it is not, I guess at it, and I run a plaster mold. Then, using a gold coin, which, rolled out to the thickness of 27-100 standard gauge, makes a very soft plate to work, I make a telescope or cylinder as near the size of the root as I can by this mold, and I take a mallet or piece of ivory, or any hard substance, and I drive that on to the root, using the root as if it were a swage: and I can drive them so tight that they will absolutely hold water. Of course, the roots are of different shapes, and if these telescopes are a little smaller you can drive them on to the roots, and they will stretch themselves to the exact shape of the root. That is the ground work, and that shows you how completely this cement filling in the cap can be controlled from the effect of saliva and wasting away. Then, if I want to make a gold crown, I use my blow-pipe and make a gold crown: then I make a little platina tube, and, after punching a hole through the crown, I set this little platina tube through, which is made by the blow-pipe and soldered. The solder is made of one part brass to five parts gold, and in making it thus you do not discolor the work, so that when the work is finished it is absolutely of the same color all through; and with this little platina tube set in the gold and plastered or soldered around, I retain the cavity there. It is managed without a particle of trouble; that is just a matter of saving time. It would take half an hour to cut those holes through with a drill. After setting the nut in the head, I fill this with German cement, as much as is required to fill the space between the crown and the porcelain or gold, and I drive that to its place with a mallet: that makes a perfectly firm, solid crown. The material with which it is filled is protected from moisture by the telescope. The gold nut in the root has a screw on the outside and a screw on the inside, a thread on the outside for holding it in the root, and a thread on the inside for receiving the gold screw. The telescope fits right over the root.

Dr. ——— : Then your cap which you use is simply a cap of this 27 gold struck up in this way and then filled with this cement inside?

Dr. Richmond: Yes, sir; and it is done with the blow-pipe, and it is done with comparative ease and with very little pain to the patient, and in less time than any other operation of that kind can be performed. I will take one of these operations from the start and finish it in two hours in the manner in which I manipulate it. A great many think these crowns are separate, but they are not: they are entirely done with the blow-pipe. It is a nice piece of dentistry, and it is reduced to a perfect system; step by step it comes into existence. It has been my experience that these telescopes driven under the alveolus will produce mechanical irritation for twenty-four or forty-eight hours only, and as soon as they are driven through and stay still long enough, the inflammation will entirely subside without any treatment, and the gum will close around about that telescope and take kindly to it, the same as it does to a tooth. I will say, if any of you gentlemen have a case which you wish attended to in your office, I am ready to do it for you; and wherever I go to work and perform this operation, you have only to pay me for my labor the same as you would at home.

Dr. Atkinson: I wish to say a few words on this subject, because it strikes me as being a step in advance. Albeit, I could not quite consent to the morphology that the practice is based upon. But the special point of interest is the preservation of the alveolar process and the proper distributor of the masticating forces, namely, the root of the tooth. For, whenever a root is extracted, loss does occur, and that loss has been so common as to be considered comparatively innocent, when it is demoniac as it can be—it is downward. Any individual that has lost one tooth is less a man or a woman than before, for anyone who has lost a tooth has lost the completeness of the arch. And when I say a tooth now, I mean specifically the root of the tooth, the attachment, the portion that connects it with the circulation and the nutrition of the body. I don't mean specially the crown. And that brings me to the point of again urging upon my brethren the necessity of understanding how it is that a root remains, without being a foreign body, in the mouth. The nutrition that occurs between the socket and the cementum, and the dentine, has not been understood, until within the year; it has been proved by observation of the competent men at No. 37 West 45th Street, in this city, since last May. And it is for the purpose of advocating the preservation of the entirety of the body that I thus strongly indorse the setting or pivoting of teeth—of molars, bicuspids, cuspids, incisors above and below; and, when we shall have understood the principles that underlie the practice that has been presented by Dr. Richmond to us, we will respect the practice more, whether we do the individual who presents it or not. It is not individuals that we care for; it is not the lack or completeness morphologically of the subject presented to-night: but it is the practice that is to enable us to understand the questions that we are dealing with, and how we can best secure a completely clean mouth to our patients. That can be made cleaner than any other kind of artificial apparatus excepting a filling in a tooth with which I am acquainted. One single suggestion I would make, I should prefer to use some form of gutta percha to anything that crystallizes for filling in the space between the cap and the crown of the root. That is the only criticism I have to make upon the method, that the advocacy seems to be strongly pointing to a coat of the chloride of zinc, cement plomb, or whatever you choose to call the substance, that is oxide of zinc and chloride of zinc, with or without coloring matter, making a crystalline cement. If we were more in earnest and more determined to do the best thing, irrespective of how much it costs us, or irrespective of how much we were to get for it, we would be in a better condition to appreciate the beautiful thing we have seen presented to us, that is, in accordance with the anatomy of the human body. I hope every man here will take the hint and do as Dr. Richmond has done.

AMERICAN ACADEMY OF DENTAL SCIENCE.

The Eleventh Annual Meeting of the American Academy of Dental Science was held in Boston, on Wednesday, October 30th, at the Hotel Brunswick. There was a very good attendance, including many eminent members of the profession.

The meeting was called to order at half-past ten by the President, Dr. E. G. Tucker, who delivered a brief address of welcome, after which came the regular order of business.

Drs. G. L. Parmelee, of Hartford, Conn., J. Adams Bishop, of New York, and L. Tracy Sheffield, of Paris, were elected members.

Dr. Joseph E. Fisk, of Salem, Mass., was elected an honorary member.

The following gentlemen have been elected to membership during the year: Drs. G. H. Ames and F. G. Eddy, of Providence, R. I.; F. H. Rehwinkle, of Chillicothe, Ohio, and C. A. Marvin, of Brooklyn, N. Y. Dr. Elbridge Bacon, of Portland, Maine, was elected to honorary membership.

Officers elected for the ensuing year:

President—Dr. E. G. Tucker.

Vice-President—Dr. J. L. Williams.

Recording Secretary—Dr. E. P. Bradbury.

Corresponding Secretary—Dr. E. N. Harris.

Treasurer—Dr. L. D. Shepard.

Librarian—Dr. J. T. Codman.

Board of Censors—Drs. T. H. Chandler, W. W. Codman and D. M. Parker.

A communication was received from the Massachusetts Dental Society, inviting the Academy to meet with the other dental societies of New England, in joint convention, to be held in the city of Boston, in June, 1879. The invitation was accepted.

The following resolutions were presented, and, after discussion, adopted:

Resolved, That the use of public prints for advertising pretended professional merit is derogatory to the dignity of the profession, and should be strongly discountenanced by its members.

Resolved, That among regular practitioners any disparagement of their fellows to patients or the public is a serious infraction of true ethics, tends to lower the profession in public estimation and to debase the individual detractor, and should be condemned by all who have the best interests of the profession at heart.

The Academy, having completed the routine business, took a recess until 2 P. M.

At 2:30 P. M., Charles W. Eliot, LL.D., President of Harvard University, delivered the annual address before a large number of the profession, including many who were present by invitation of the Academy.

The following is but a brief synopsis of the address, which will soon be published in full. It was of an informal nature, delivered in a graceful and eloquent manner, and without notes.

President Eliot took for his theme, "The Defects Apparent in the American System of Dental Education." He said that the development of the dental profession in the seventy years of its existence in the United States had been remarkable; but as the development of a profession requires centuries, dentistry could not be expected to possess all the safeguards from injurious influences which have been attained by older professions. The progress of dental science in this country not only has been extraordinarily rapid, but, on the whole, satisfactory; and the causes of this, the orator said, were the American inventive genius, the hospitality of the American mind to novelties, and the soft, unphosphatic diet of which Americans are fond. Besides this, every cultured American visited a dentist twice a year, while an Englishman only went when his tooth pained him. The former sought relief for future time, the latter for the present.

Mr. Eliot then took up the question, Is there real ground for the anxiety which exists for the improvement of the status of the profession, and especially dental education?

From the great increase in the number of dentists and of patients, the increase in periodical literature and standard works, and the increase in the organized means of education, he thought there was real ground for that anxiety which manifests itself at the present day in dental literature and discussions.

The improvement must be brought about in a great measure through the organized means for the education of the profession. Our dental schools demand no preliminary examination, while those of England require several university examinations; and this simple fact will in time determine the superiority of the profession in England.

He argued that, besides the preliminary examination of candidates for admission, the course of dental study should be three, instead of two, years long, and said a change in this direction is essential to the establishment of the dental profession on an equality with other professions. There should be no admission of the substitute of five years of practice for any portion of the period of study. There should be a certificate of attendance upon what may be called "private instruction," deposited in advance, and the practitioner granting such certificate should be required to show that he has proper facilities for instruction.

The exclusion of ignorant men from the profession was next discussed, the orator arguing that the proposition to secure this by means of a public registry, as in other countries, is not practicable in America: the people, or their representatives in legislative halls, are not competent to decide questions of science or of the higher education. Educated public opinion, and not legislation, would in time reduce the evil.

He commented unfavorably on the recent new departure of several reputable medical schools, which advertise to confer both the medical and dental degree for three years of study; and argued that, as not more than three-fifths of the studies of these two courses were in common, and that as a three years' course was absolutely necessary to the medical degree, the two degrees could not be given in that period without lowering the standard of both.

While he hardly expected at present that the large proportion of dental students would be educated in the thorough way of first obtaining the medical and then the dental diploma, he hoped that the efforts of the profession would be directed to the improvement and upraising of the dental schools.

He urged the profession to emulate the zeal of the medical profession in its research and scientific study, and also in their noble example of gratuitous practice. He advised the necessity of strict professional etiquette in dealing with patients of other practitioners, and spoke of the value of associated action of the profession in the common pursuit of common knowledge, and of the value of recorded experience and observation as a help to those coming after, and above all he placed the three aids, research, teaching and gratuitous labor, as establishing and ennobling the profession.

He closed with a complimentary allusion to the Academy and other associations of dentists for the good work they were doing in elevating the standard of the profession.

The address was received with the closest attention, and at its close a vote of thanks to President Eliot, coupled with a request for permission to publish, was unanimously passed.

An essay by Dr. Henry S. Chase, of St. Louis, on "Filled Teeth as Galvanic Batteries," was read by Dr. G. T. Moffat, a letter having been received by him from Dr. Chase, stating that he was unable to be present.

Dr. Chase, after announcing his belief in the theory of Dr. S. B. Palmer, of New York, that every tooth having a metallic filling was a galvanic battery, proceeded to recount several experiments made by himself, which had convinced him of the truth of this theory. The conclusions arrived at were that dentos was positive to gold, gold and platinum, amalgam, tin and lead. Each of these metals, united to dentos, formed a battery, the power of which could be stated thus :

With gold and gold and platinum	100
Amalgam	66
Tin	50
Lead	30

With gutta percha stopping there is no action, and with oxychloride of zinc the tooth became negative and the filling positive.

In concluding, he said that the perfect filling was yet to be discovered. It must not be negative to dentos, it must not be positive to dentos, and it must be plastic.

The essay elicited quite a lively discussion, after which the Academy adjourned, and the members, with the invited guests, partook of the Eleventh Anniversary Dinner, at 5 o'clock P. M., at the Hotel Brunswick.

EDWARD N. HARRIS,
Corresponding Secretary,
No. 5 Park Street, Boston.

ODONTOLOGICAL SOCIETY OF GREAT BRITAIN.

Extract from Proceedings of the Monthly Meeting of November 4, 1878.

The President proceeded to open the discussion on "The Use of Chloroform in Dental Operations." He began by reminding those present that the discussion had been suggested by the editor of the *British Medical Journal.* In commenting on the death of a child in May of this year, from the effects of chloroform, administered to facilitate a dental operation, he concluded his remarks on the case with the following query: "Is it ever right to give chloroform for dental purposes? We wish the Odontological Society would pronounce an authoritative opinion on the subject, and we should hope that if they were to do so they would absolutely forbid it." It was well known that the editor of the *British Medical Journal* had for a long time past taken a deep interest in the subject of deaths from chloroform, and that he had repeatedly expressed a very decided opinion as to the danger and responsibility attached to its use. As the result of this deliberately formed conviction, he had called upon the society to express its opinion on a practical question of the utmost importance, and he (the President) thought that they ought to respond to the call. If, as the writer of the article implied, the use of chloroform for dental operations was really unnecessary, then undoubtedly those who continue to employ an agent whose use might be attended with such terrible consequences incurred a most serious responsibility. There were several subsidiary points of great interest which might be discussed, but, as it was important to endeavor to arrive at some definite answer to the question he had quoted, he thought it would be better to confine the discussion to it in the first instance, viz: "Is it ever justifiable to administer chloroform as an anæsthetic for dental operations?"

Mr. Clover, unfortunately, was unable to be present, but had expressed his opinion in a letter. He was, however, pleased to see several gentlemen present who had had great experience in the use of anæsthetics, and he hoped that they would favor the society with their opinions. Mr. Clover's answer to the question was as follows: "I think chloroform may be justifiably given in cases of dental operation in which complete quietude of the patient is necessary for more than two minutes. Ether would be somewhat less dangerous, but it is very difficult to keep the patient absolutely quiet, and the bleeding is considerably increased when ether is used."

Mr. Browne Mason, of Exeter, had also written to the Secretary as follows:

"To this question, Is it justifiable to administer chloroform for dental operations? I would say that if anæsthesia by chloroform is justifiable at all, it is as much so in dental operations as in any other. Nitrous oxide gas does not answer for prolonged operations by reason of the transitory nature of its effects, so there is nothing left except ether or chloroform. I have seen more of chloroform than of ether, and I never witnessed any untoward symptom from its use in a practice extending over twenty years: but, as ether is undoubtedly the safer, I think the preference should be given to it when prolonged anæsthesia is required."

The President then called upon Mr. Woodhouse Braine, who said he quite agreed with Mr. Clover's answer to the question; he considered that the use of chloroform was perfectly justifiable in cases where a safer anæsthetic was not applicable, as in prolonged operations. It was true that chloroform occasionally caused fatal results, but the diseases of the mouth which were sufficiently serious to require the use of chloroform might themselves be fatal: such operations were not mere matters of expediency. Mr. Braine then went on to report the death from chloroform of a child at the unusual age of two years and four months, which had occurred a few days previously.

Mr. John Tomes said he had had considerable experience with both chloroform and ether; he had found them both very useful, and had never witnessed any ill effects from either of them; under these circumstances, he did not feel disposed to turn round on old friends and condemn them.

Mr. Bailey thought that Mr. Clover's acknowledged high position as authority on the use of anæsthetics entitled his opinion to great weight. His own opinion was that gas was the most suitable anæsthetic for dental operations, and that if gas was not available, ether was better than chloroform, but that if prolonged insensibility was required, chloroform must be resorted to, in spite of the fact that death occasionally resulted from its use.

Mr. Henry Barrett said he had not come to the meeting with any intion of joining in the discussion, but as the President seemed anxious to hear his experience o anæsthetics, he would state it briefly. About the year 1846 dentists began to be called upon to use ether for dental operations: he did so with others, and continued to give ether with safety to his patients and satisfaction to himself for some years. Suddenly it was found that ether was dangerous, and chloroform was had recourse to; chloroform was given for some fifteen years without any trouble or apparent danger, when all at once it was discovered to be more dangerous than ether, and one authority went so far as to say that any one who continued to administer chloroform in spite of the evidence which had been collected against it, ought, in the event of a fatal result, to be committed by the coroner on a charge of manslaughter; but, notwithstanding all the strong language which had been indulged in, he personally had never seen any danger; and, although he advocated the utmost care and caution in the use of chloroform, he did not feel disposed to condemn it altogether.

Mr. Jonathan Hutchinson said he could from personal experience testify to the superiority of nitrous oxide gas over other anæsthetics. He would allow any one who had had some experience in the use of the gas to give it to him, but he would only take ether from a thoroughly qualified person, and would not allow any man living to give him chloroform. He had used both ether and chloroform largely; he had lost one patient from chloroform eighteen years ago, and had had many alarming cases; he had seen fatal cases also under the care of others. During the last six years he had almost invariably used ether, and during that time he had not had a single alarming case. He strongly disapproved of some of the complicated inhalers now in use, in which, for the sake of economizing ether, the patient was made to reinhale his own breath, thus taking in a quantity of carbonic acid as well as ether. In the only bad cases connected with ether which he had seen some such apparatus had been used. He greatly preferred a simple leather mouth-piece, perforated at the top, with a sponge and towel inside; in this way the patient got plenty of air and plenty of ether. There certainly were a few cases in which chloroform was preferable, viz: for old people and very young children. Old people over sixty did not always recover readily from ether narcosis. He had met with several cases in which there had been alarming continuance of insensibility, and in one case death seemed to be partly due to this cause. Chloroform seemed to be less dangerous than ether to old people; and in the case of infants there seemed to be practically no danger at all, while it was most dangerous to young people. At the hospital in Moorfields there used to be on an average a death from chloroform every year, and they were nearly always young people operated upon for strabismus. Chloroform was certainly more convenient in some respects and pleasanter to take than ether; patients who had tried both almost invariably preferred the former; but he thought it criminal to place a patient in danger of losing his life by giving chloroform, when ether had been found to be so much safer.

The President asked Mr. Hutchinson whether he did not think that dental operations presented some peculiar features which entitled them to special consideration?

Mr. Hutchinson said he could not call to mind any points in which dental operations differed materially from those in general surgery; he thought that the opinions he had expressed would apply equally well to them.

Mr. Mills said that his answer to the question would be "Yes, in certain cases." At the same time he did not consider chloroform to be the most suitable anæsthetic for dental operations generally. Nitrous oxide was the best in the majority of cases, and when more prolonged insensibility was required than could be obtained by the use of the gas, he thought the next best plan was to supplement this by ether; gas and ether inhalation was not attended by the danger of syncope, which was so great a cause of anxiety in giving chloroform. At the same time there were undoubtedly cases in which chloroform was the best agent; it was best for old people, especially if they had any tendency to bronchitis, and it was best for very long operations. Although he had seen more bad cases from chloroform than from either gas or ether, and admitted that it required more care in its administration, still he thought its use was justifiable in certain cases.

Mr. Braine said he wished to call Mr. Hutchinson's attention to some important points in which dental operations differed from those in ordinary surgery in regard to the use of anæsthetics. In the first place, the mouth had to be kept wide open, and had also to be left as free as possible for the use of the operator; it was, therefore, very difficult to regulate the amount of air which the patient inhaled. When the patient was once under the influence of chloroform, insensibility could be kept up by the aid of the nose-piece, but to keep a patient under the influence of ether without at the same time hindering the operator was a difficult matter. Then again, ether caused profuse secretion of saliva, and greatly aggravated any hemorrhage which might occur, and the collection of blood and saliva was often an annoyance to the dentist by obscuring the parts. These were some of the objections which might be urged against the use of ether for dental purposes.

Mr. Charles S. Tomes said he would state, as briefly as possible, what his practice was; his opinions might then be readily inferred. He would never again allow a patient to take chloroform or a doctor to give it at his house, nor would he, under any circumstances, advise a patient to take chloroform; but if the patient wished to do so, and he thought that the case justified its use—such cases were very rare—he would insist on the patient taking it in bed at his own house, with all the precautions which were usual before the performance of other surgical operations. Given in this way, there would not only be less risk to the patient, but in the event of a fatal accident, no blame could attach to the dentist. With reference to what has been said as to the unsuitability of ether for dental purposes, he could only say that he had seen several cases of cleft palate successfully operated on under ether at a New York hospital, and that the patients were kept well under its influence without in the least impeding the movements of the surgeon; all danger and trouble from bleeding was obviated by laying the patient on his side, so that the blood ran into the cheek and out at the angle of the mouth. After this evidence of what was possible, he might be pardoned for thinking that the adaptation of ether to dental requirements was merely a question of management.

Mr. Bird thought that the use of any kind of anæsthetic in dental operations might generally be looked upon rather as a luxury than as a necessity. Nitrous oxide was certainly the most suitable for dental practice; even somewhat lengthy operations could be completed by means of successive administrations. He thought that it had been proved that the sitting posture usual in dental operations increased the risk attached to chloroform inhalation; he, therefore, quite agreed with the precautions which Mr. Charles Tomes had suggested.

Mr. Woodhouse said he would adopt Mr. Tomes's plan, and state his usual practice with regard to anæsthetics. He used nitrous oxide in all cases where it could be made available. Formerly, in cases where a number of teeth or stumps had to be removed, he used to give chloroform, and extract all of them at one sitting; now he used the gas, and had it administered a second, third, and, if necessary, a fourth time, on different days, extracting two or three on each occasion. Still, cases did occur in which nitrous oxide was useless, on account of the brief duration of the insensibility, and he considered that, under these circumstances, it was just as justifiable to give chloroform for a dental as for any other surgical operation.

Mr. Underwood said that during the eight years following the introduction of nitrous oxide, chloroform had not once been given in that hospital. In his private practice, he had during the same period used chloroform only three times. He thought that these facts proved that, though it was impossible to say that the use of chloroform was never justifiable in dental practice, still that the cases in which it was required were very rare. In the great majority of cases nitrous oxide would suffice. He agreed with Mr. Woodhouse that there was no object in extracting a large number of teeth at one sitting. His opinion was that chloroform should be reserved for very exceptional cases, and practically he found that it was very seldom required.

Mr. Pedley said that, after hearing the use of chloroform in dental practice condemned by such high authorities, he could not help feeling somewhat guilty, for he had given it twice during the past two months. And yet, on consideration, he thought what he had done was justifiable; both were cases of impacted wisdom teeth, and their elevation and extraction was a very troublesome business, occupying in each case about a quarter of an hour. Gas was, of course, quite useless, and he personally found it very difficult to keep a patient under the influence of ether with his mouth gagged wide open, as was necessary in such cases as these. It might be a long time before he again met with a similar case; but having so recently experienced the value of chloroform, he did not feel disposed to answer the President's question with an unconditional negative.

Mr. Hunt said that at one time he was in the habit of giving chloroform four or five times a day, but for the last ten years he had used nitrous oxide almost exclusively, and had only had twelve chloroform cases during the whole of that time. He had never seen a death from chloroform, though he had seen several alarming cases; he had seen also one narrow escape from death by nitrous oxide. Ether might be somewhat less dangerous than chloroform, but it was certainly difficult to manage when given for operations in the mouth. His experience was that nitrous oxide would do in the great majority of cases, but that there were cases in which the use of chloroform was necessary, and he thought that its use under these circumstances was justifiable.

Mr. Sewell said that toward the end of his studentship at St. Mary's Hospital two patients died under chloroform; in both cases the operation which was being performed was a trivial one, and in neither could any disease be found to account for death. These deaths occurring as he was starting in practice, made a deep impression on his mind, and this impression was strengthened by the arguments of Dr. B. W. Richardson, with whom he happened at that time to come in contact. He was in the habit of using gas constantly, and up to that time had not met with a case in which, according to his ideas, the use of chloroform was justifiable. Such a case might occur, and should he ever meet with one he should certainly adopt the precautions which had been suggested by Mr. Charles Tomes.

The President said that all who had spoken had agreed that the use of chloroform in dental operations could not be absolutely forbidden, but that it should be restricted to very exceptional cases. Mr. Charles Tomes had added some very practical suggestions: he said it should only be given at the patient's own house and with the patient in a recumbent position. His own opinion was that a previous consultation with the medical attendant of the patient was also desirable. He proposed that the Society should adopt these suggestions in the form of a resolution, thus: "That it is the opinion of the Society that the use of chloroform in dental practice should be restricted to very exceptional cases, that it should only be given at the patient's own house and with the patient in a recumbent position, and that whenever circumstances will admit of it a previous consultation with a qualified medical practitioner is highly desirable."

Mr. Dennant thought that, with all deference to the President, the adoption of any such resolution was very undesirable. In London it would be easy enough to comply with its conditions: any of the members present could at any time obtain the assistance of experts thoroughly skilled in the use of the anæsthetic which might be deemed most suitable for the case. But dentists residing in the country had only country surgeons to depend upon, and they were obliged to conform to their usages. Gas and ether had been for some years before the profession, but their use was not yet general throughout the country; in many parts chloroform was still the only anæsthetic with which the medical practitioner was familiar. It would not be fair to pass the resolution in the name of the Society. The meeting was not a truly representative one; it was composed almost entirely of men residing in or near London, while the bulk of the members were scattered throughout the length and breadth of the kingdom, and, as he had shown, these would be the people who would be chiefly affected by the resolution.

Mr. John Tomes could not see why the responsibility of answering this question should be thrust upon the dental profession only: it was one for the whole medical profession to decide, and its terms should not be, is chloroform justifiable in dental operations, but in minor surgical operations generally. The question had been fairly discussed, and he thought they should be contented with the general agreement of opinion which had been expressed.

Mr. Walker said he agreed with Mr. Braine and other speakers, that chloroform was preferable to ether for dental operations. He had given ether a fair trial, but the result had not been satisfactory. He was in the habit of using chloroform occasionally, but he always placed the patient in the recumbent position, unloosed every band, and generally observed the same precautions as if the operation were a capital one.

Mr. Charles Tomes' thought that the passing of a resolution without notice was an unusual termination to a scientific discussion, and might possibly become a bad precedent. He doubted whether the majority of the members present had given sufficient attention to the question, or had had sufficient evidence before them to enable them to decide it as carefully as its importance deserved; he would advise that the resolution be not passed.

The President said he should be sorry to urge the Society to come to a definite conclusion against their inclinations. No doubt practitioners in London and other large towns were more favorably situated as regarded the facility of obtaining advice and assistance than were their brethren in the country, and it was possible that an unfair use might occasionally be made of the resolution by the legal profession; he would not, therefore, press it. It was the less necessary since all the speakers had agreed that though the use of chloroform might be occasionally justifiable, it was very undesirable to use it in any case where the services of other and safer anæsthetics could be made available, and he felt sure that the strong conviction of the danger and responsibility attached to the use of chloroform which had been expressed by some of the speakers would have great influence with the profession.—*British Journal of Dental Science.*

SUGAR AND TEETH.—The *Medical Journal* of Charleston, S. C., thus stated the conclusions of M. Larez: "1st. Refined sugar injures teeth—either by immediate contact, or by gas developed in the stomach. 2d. That a tooth soaked in sugar-water becomes jelly-like, from the sugar combining with the lime of the tooth."

JOHNSTONS'

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RELATIONS OF THE PROFESSION AND THE PUBLIC.

BY DR. C. A. BRACKETT, D. M. D.

Read before the Connecticut Valley Dental Association, at its Annual Meeting.

Dr. BRACKETT*: I regret very much that I have not been able to put in better shape something in the way of a more worthy opening of the consideration of this topic. I attempted the preparation of a paper, but a multiplicity of other duties forced me to lay it down as soon as commenced, and what I have to say must be presented in crude form.

Let us first think a little of the dentist's active part in the relations. The first thought that arises is that the dentist is the servant of those for whom he works, the servant of the community in which he lives, the servant of the great public, so far as choice or necessity may bring it to him for advice and treatment, and so far as his general influence may extend. The dentist is one of that high class of servants whose knowledge concerning the work is vastly better than that of the recipient of the service; and from this fact arises much of the obligation and responsibility that rest upon him. In few callings are there more abundant opportunities for the unscrupulous and short-sighted to pursue dishonorable ways than in dentistry. Hence, the right-minded practitioner is placed, by force of circumstances, on his honor, and by this must be ever guided. Great responsibilities are placed upon us; great confidences are reposed in us; and it is our part first to see that these responsibilities are not misplaced and these confidences are not betrayed.

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* Dr. Brackett wishes especially to acknowledge the courtesy of being allowed to revise and slightly extend these remarks since originally made.

The conscientious young man, preparing for the practice of dentistry, will aim to make that preparation as thorough and complete as possible. It will include many kinds of culture besides the study of strict dental science and art. At the foundation lies the physical system; and this should have such care and culture as will enable it best to accomplish its own work—such care and culture as will cause the brain, and nerves, and muscles to be healthily alert, and active, and under control. The education of the eye and hand is of surpassing importance, because they must directly accomplish the work to be done. Without manipulative dexterity of a high order, a man cannot hope to attain the best success in dentistry. In his mental culture, the student will add to all he can learn of dentistry the study of such allied branches as can be made to serve him. Anatomy, human and comparative, histology, microscopy, physiology, surgery, general medicine, physiognomy, art expression—to say nothing of Greek, Latin, French, German and general literature—may all be profitably studied, so far as time will allow. In fact, the field of knowledge which may contribute to the excellence of the dentist's preparation is so immense, so ever widening, there are so many experiments to be made, so many theories to be proved or disproved, so many facts to be demonstrated and established, that it is marvelous how any student or practitioner, however limited the time which he may be called upon to spend at the chair, can have any unoccupied hours.

But it is in the degree of culture to which the dentist's moral nature has been brought that much of the estimation in which he is held by patients and public must depend. Absolute freedom from every suspicion of impurity, vulgarity and coarseness, not only should there be, but the manner should always manifest that consideration, self-control, politeness, kindness, gentleness and sympathy, which, while always agreeable to those with whom we have intercourse, are especially so to those under our necessary inflictions of discomfort and pain. Few men have more need of "the heart that can feel for another's woe." By this I do not mean any sickly sentimentality, but I do mean such love for humanity, and such kindly feeling, as will lead us always, while doing our duty unflinchingly, to do it with due regard for the shrinking, sensitive tissues upon which we work. If we will apply the Golden Rule to our relations with the dentist's chair, we shall be apt and alert to devise many alleviations of suffering, not at all in the way of thoroughness and excellence in our operations, but greatly to the elevation of our standing in our patient's mind, and heart, if I may say it. But, understand me, all this politeness and consideration must not be put on for mere outside show and effect, for policy's sake. It must be the free, natural expression of a large heart, of true gentlemanliness; not the gentlemanliness of Chesterfield, but that gentlemanliness of which Calvert has said that perhaps it cannot be better defined in one word than with unselfishness. But the true gentleman possesses in large measure, not only the negative quality of unselfishness in its restricted sense, but also the positive one of genuine regard for the comfort, and happiness, and well-being of others; all of which, and much more, Calvert certainly intended to be comprehended in the definition of the true gentleman.

The dentist should be emphatically a man whose highest interest is in his calling. The Code of Ethics adopted by the American Medical Association well says: "Patients should prefer a physician whose habits of life are regular, and who is not devoted to company, pleasure, or to any pursuit incompatible with his professional obligations." While the dentist's interviews with his patients may be brought within more regular, and, perhaps, fewer hours than can the physician's, the statement just quoted applies with hardly lessened force to members of the former profession; or perhaps we may change the phraseology a little and say: The man who would achieve eminence in dentistry must have such love for his calling that all other affairs occupy at least a secondary place in his regard. The man who renders the world the greatest service in any field is the man who, with common sense, has a mission; the man who, in the depths of his heart, feels that he has a divinely appointed work to do. Such a man avoids many things that would be distractions. He does not disregard rest, relaxation and pleasure; but he makes them his servants to revive, to refresh, to recreate his energies, instead of, by any means, taxing or dulling them. The earnest practitioner makes sacrifices; but these sacrifices are only such as come in the exercise of that self-denial which a great preacher has well said means only the giving up in the present some small, trifling and transitory gratification, that thereby, perhaps in the future, but surely some time, may come some greater good, more important and more enduring. Professional devotion goes far in the beginning to make the weight of these sacrifices small; and well established habit will make them slight indeed. It is to be regretted that often we don't know when we are happy. In the confinement and weariness that sometimes we must feel, we are prone to think that if we could be freed from all the cares, and labors, and perplexities of practice we might have perfect enjoyment. I suppose the truth to be that, if we were forced to have just that for which we are longing, we should be of all men most miserable. Probably under no other circumstances could most of us get more happiness out of life than in the pursuit of our daily routine. Of course, we would like to have some things different from what they are; but, in the main, I have faith to believe that few combinations of circumstances could be made in this earthly life that would be better for us than those under which we are living. We want to know this, and open our eyes to see and our hearts to feel every day our blessedness.

Dentistry has been honored by being called a liberal profession. We should see to it that this is not a misnomer, but that our proceedings are characterized by liberality. We should be above all consideration of petty things and labor for the accomplishment of good. Concerning pecuniary recompense for our labors, there are several points worthy of consideration. It is probably well that in the present organization of society we cannot ordinarily give, and are not expected to give our services in the apostolical way. Viewed in a commercial light the capacity of the dentist for performing operations is his stock in trade, from which he is to realize his bread and butter and make provision for those dependent upon him, and for his own old age. This capacity, this stock, he places in the market. In each individual case it has various valuable peculiarities; in all, it is limited in amount. In the longest day there are but a definite number of hours. In the longest lifetime there are set inexorable bounds to the working productive capacity. When it is gone, no more can be had. It is each man's privilege, then, ordinarily his duty, to sell it for the highest amount—to the highest bidder. Then, on the other hand, we are confronted with the fact that in the present condition of things, with our present means and methods, there is a failure to preserve the teeth of the masses. The great majority of diseased teeth must go without conservative treatment; often, it is true, because such treatment is not desired, but generally because it cannot be paid for. The Great Physician has said, in regard to all services, even the most trifling, which one human being can render another, "Inasmuch as ye have done it unto the least of one of these ye have done it unto me." The thoughtful, honest man, will keep these two points before him, and give to each such weight and influence as his own mind and conscience shall determine.

From the business point of view there are yet other considerations. In commercial transactions it is well understood that a low price means low quality. The converse of this statement is supposed to be generally true—unhappily it is not always so. But it comes very naturally to be that things are valued in proportion to their cost. That which costs little is thought worth little, and given little consideration. It is the concurrent testimony of physicians that gratuitous prescriptions and free medicines do not have their directions followed with anything like the regard given to those that are paid for. Our patients should feel that the salvation of their teeth costs something or they will not value it.

As I have said, dentistry is a liberal and an honorable calling, but the dental profession cannot be liberal and honorable unless its members are so. The whole cannot be better than the sum of its constituent parts. In the pursuit of a calling like this, there are proprieties to be observed and dignities to be maintained. Much of these are comprehended in the statement already made, that the dentist should be, in the truest sense, a gentleman. But there is one matter of which I wish to make special mention, because in it and connected with it, are some of the great reproaches that rest upon us as a profession. I say us, as a profession, because the general public classes with dentists every man who chooses to call himself such, whatever his education, preparation, attainments and manner of practice may be. So, when I say dental profession now, I mean what the public calls the dental profession. I contend that the practice of advertising in the publie prints, or by circulars, handbills, and posters claims of special ability and special lowness of fees—a practice in which some otherwise good men have indulged—is greatly to the discredit of the practitioner who does it, and especially derogatory to the profession of dentistry. Why? There are many reason why. There is nothing objectionable in the dentist putting in the paper a card telling the public—those who may be in need of his services—his name, his calling, and his location. Other facts concerning us and our practice will rapidly become known in any community. The publication of such a card is a modest, proper, gentlemanly thing to do; but when the self-laudatory style is adopted, the style which for want of a better descriptive epithet may be called "spread eagle," the gentleman is sunk in the braggart. Thereby delicate and effective instrumentation is supplanted by crude and coarse means. These means are such as must, in a measure, defeat their own ends—presuming that it is the desire of each man to work for as good a class of people as possible. The general public knows enough of such matters as we are considering, to know that displayed advertising in medicine generally means quackery; and the thinking portion of it bewares. This advertising may draw a crowd, but it will assuredly keep away excellent, cultivated people who know nothing of the advertiser and have no means of judging, except from this public action of his. It is putting on the clothing of the wolf. We have high authority for avoiding not only evil but the appearance of evil; and displayed and self-puffing advertisements in dentistry, are to the thinking man and the refined lady the appearance of evil.

So in the matter of advertising particularly low fees. If we wish to buy a watch which shall be an exact and durable timekeeper, we don't go to the place where watches are advertised as being sold for the fewest dollars, or the fewest cents; but we go to a dealer of character and reliability, explain our want and pay his price, such a price as our own reason shows us must be put upon an article whose production requires such valuable materials and such skilled labor. If the advertisement of the watchmaker of watches for five dollars, or watches for twenty-five cents, throws suspicion upon the quality of his wares, so does the advertisement of the dentist of remarkable lowness of fees throw suspicion upon the character of his work, upon his faithfulness, upon the amount of time and labor, of brain and conscience, which he puts into his operations, and consequently upon their excellence and durability. Do not understand me as clamoring for high fees. Not at all. The dentist who works for one dollar an hour may be just as worthy a man and just as faithful a practitioner as he who asks ten; but I do say that a dentist whose chief claim for patronage is based on the lowness of his fees, paraded in the public prints, on large posters, signs and transparancies, is working on a narrow foundation. In its place, advertising is a great thing, one of the mightiest agencies in the world; but, notwithstanding numerous statements to the contrary, commodities are seldom voluntarily sold "less than cost."

So much for a few of the many points of relation of the dentist to those whom he serves. I have spoken particularly of these things, not because they are of themselves most vitally important, but because at this time there appears to be a need of calling attention to them if we are to substantiate fully our claims to professional character. I fear that some things I have said may be misunderstood; but I am sure that I have made few statements that the right-minded practitioner and the right-minded patient, out of their own common sense, cannot indorse.

Now, with your indulgence, a few words in regard to the patient's part of the relations. Of course, these are, in large measure, passive; but there are quite a number of points which should receive their active attention. One of the first of these is the selection of a dentist. They should go to a man whose character and standing are such that in him they can have confidence. While feeling it their privilege and duty to make all suggestions and express all preferences, they should be able to place themselves in his hands for such advice and such operations as his educated judgment may determine. The good patient goes to his dentist for treatment, not "to have a job done;" and he no more thinks of asking, "Do you warrant your operations?" than a good son thinks of asking a kind and indulgent father if he will deal justly by him. To such matters as consideration of the difficulties under which the dentist labors, and faithfulness and punctuality in keeping appointments, the patient should have regard. In my own practice I make a charge for appointments neglected without notice or some good and apparent reason, as a severe storm. In practice, too, I consider my patient's time as valuable as mine; and if I fail to meet an appointment without sending sufficient notice, the same sum is credited on the account that would have been charged if the failure had been the patient's. Patients often make sacrifices of convenience, of pleasure, of business, in order to meet appointments with us. In domestic affairs, exigencies sometimes arise to delay a patient whose disposition to be prompt is of the best; and I come back to the dentist's duty to say that, concerning all of these things, consideration on our part should not be lacking. In our chairs, the exercise of reasonable patience and forbearance on the part of the patient is very grateful to us. In this regard, though notable exceptions occur, I am sure we should all say that generally we are favored quite as much as we have any reason to expect, in many cases more so.

Probably the most important part of the patient's duty in these dental relations is to be found in the personal care given to the teeth. It is the duty of the dentist to impress upon the mind of each patient the fact that, as a rule, the preservation of the teeth in good condition depends quite as much upon constant personal care and cleanliness as upon any operations performed. Then, it is the duty of the patient to spare no efforts in this personal care and cleanliness. Its neglect may lead to the failure of faithful operations, bring censure upon a worthy dentist, and reproach upon the conservative practice of our calling.

It is much to be regretted that there are many misunderstandings between patient and practitioner. As a matter of fact men are constantly misapprehending each other, even about the commonest everyday affairs. What wonder is it, then, that we sometimes fail to be correctly understood in dental matters when honestly trying to be plain. Patients, of themselves, gain erroneous ideas, too, of the time when certain operations were performed, by whom they were performed, and on many other points. In these matters a carefully kept and complete record of operations is of the utmost service. Such a record is a satisfaction not only to ourselves, but it can almost invariably be so exhibited as to convince the patient of its reliability.

Mistaken conceptions arise not only between patient and practitioner, but between practitioners themselves. Mistakes will occur so long as the world endures. I suppose we cannot change that fact, but we can give it practional recognition. When a person comes in and points to a filling with decay all about its borders, saying that Dr. Blank, over the way, made that filling less than a year ago, we should consider and state to the patient the possibility, not to say the probability, of there being some mistake, and that our brother may not be so bad as the truth of the expressed idea would indicate. Self should be the first person to hold to strict accountability. By the time we have done that, we shall probably be ready to be reasonably charitable toward others.

I have spoken of many business points in the relations of the profession and the public—of awkward and disagreeable points ; but how much there is in these relations that is very pleasant. In the mutual exercise of effort, of confidence, of patience, of forbearance, of sympathy, of delicate consideration and kindly regard, how much is there to educate and develope and gratify the higher portions of our nature. I repudiate, utterly, the idea that our occupation is a harsh or hardening one. Properly followed it affords rare opportunities for the culture of all that in us which is best—which is most akin to divinity. With self-respect, with respect and sympathy for suffering humanity, with love for the creature and love for the Creator may the followers of our noble calling go on to more extended usefulness in yet higher fields, blessing and being blessed.

SANITARY SCIENCE.

CHAS. A. BRACKETT, D. M. D.—THE SANITARIAN.

"DEATH FROM POISONOUS GASES.—Reports on the sewerage of the late residence of James S. Rockwell, the millionaire, of Brooklyn Heights, who died from diphtheria, were submitted to the Brooklyn Board of Health yesterday by Sanitary Superintendent Raymond and consulting plumber James J. Powers. The report of Dr. Raymond set forth that the house of the deceased was filled with traps, and was connected with the sewer in Furman street by a five-inch pipe. There was no trap at the point where the connection was made. It was found that sewer gas arose in the house owing to several of the traps being unsealed. The report recommended that a trap be placed at the connection of the sewer with the pipe leading into the house, and that some of the plumbing arrangements be changed. The Board adopted the suggestion."—*From N. Y. Herald.*

Our cities are fairly reeking with diphtheria and other miasmatic diseases, and "items" like that above, taken from the N. Y. *Herald* of 22d inst., are frequent, yet not one in twenty of our intelligent, educated classes—nay, even of our professional men, indicate by their action that Sanitary Science has an existence. In building their own houses, even attention is given to the foundations, the quality of the building materials, the thoroughness of the carpenter, the shade of the paint and the skill with which it is laid on, the roofing material, &c., and to the plumbing—yes, even the plumbing—"it must be a good job;" but to the real plan by which noxious gases are to be excluded, and the waste water—slops—delivered clear from the premises, no one pays more attention than to say, "That's the architect's business, and he gives especial attention to the plumbing." Meantime disease and death invade our dwellings, *not uninvited.* They are, to be sure, most frequently drawn to tenement houses and those portions of the cities where the poorer classes are crowded together, and even external cleanliness is neglected, but are by no means confined in their *invited* visits to these places. The city houses of the wealthy (as in the case reprinted), and even country residences are by no means neglected.

Then we comment on the "inscrutable ways of a mysterious Providence"—arrant blasphemy! if we knew it.

The citizens of Newport, Rhode Island, are blessed in having some public spirited as well as wise and prudent men among their Bank Presidents, Rectors, Editors, U. S. Naval Officers and Dentists, among the latter our esteemed correspondent, Dr. Chas. A. Brackett, who is one of a council of "The Sanitary Protection Association of Newport." A copy of the prospectus of this Association reveals a well considered plan by which the subject of Sanitary Science which is so little understood by the masses may, by the concerted action of a few intelligent men, be brought to the favorable consideration of the community inexpensively and without the opprobrium which always attends a measure which is forced on unwilling voters by an act of the Legislature.

The objects of the Association will be best shown by extracting a page from their pamphlet, but each village of the land should adopt their method and apply to the Association (office Gas Company Building, Thames St., Room 9) for a copy of the Prospectus which, we doubt not, they would cheerfully furnish in the interest of the cause they are advancing locally:

GENERAL OUTLINE OF THE OBJECTS OF THE ASSOCIATION AND PRIVILEGES OF MEMBERS OF THE SANITARY PROTECTION ASSOCIATION OF NEWPORT, R. I.

1st. To provide its Members, at moderate cost, with such advice and supervision as shall insure the proper sanitary condition of their own dwellings.

2d. To enable Members to procure practical advice, on moderate terms, as to the best means of remedying defects in houses of the poorer class, in which they may be interested.

3d. To aid in improving the sanitary condition of the city.

The first inspection does not cause any disturbance to household arrangements. It is followed by a report making specific recommendations, if any improvements in the household arrangements are thought necessary. The members are not bound to carry out these recommendations.

The subsequent annual inspection will, so long as tbe sanitary arrangements remain in working order, entail no expense beyond the annual subscription.

The following is a formal statement of the privileges of members. The annual inspection spoken of in the second paragraph will form the main business of the Association. It is believed that no system of drains, or other sanitary appliances, can be depended upon to remain in perfect order without skilled inspection; and this skilled inspection can be cheaply and efficiently provided by the Association.

Each member is entitled to the following privileges, in respect of property within the municipality of Newport:

1. An immmediate report by the Inspecting Engineer of the Association on the sanitary condition of one dwelling on property, with specific recommendations, if necessary, as to the improvement of drainage, water supply and ventilation, and a report upon the water by the analyst

2. An annual inspection of his premises, with a report as to their sanitary condition.

3. Occasional supplementary inspection and advice concerning the dwelling or property in respect of which he is a subscriber,

4. Each member by his annual payment secures the above privileges in respect of one dwelling or property occupied or designated by him. Should he be interested in two or more dwellings or properties, as owner or occupant, he may secure equal privileges in respect to them all, by paying the annual subscription for each.

5. A report, to be obtainable on payment of a special fee, on any dwelling or property, or plans thereof, which he may wish to hire or purchase.

6. Reports by the officers of the Association as to the sanitary condition of any dwellings or properties of the very poor, on payment of a moderate fee.

7. A report, without fee, upon the sanitary condition of any public building, as church, school-house, or place of public resort, within the city of Newport.

[While on this subject we would call our readers' attention to a monthly journal of decided ability now in its ——— year, called the *Sanitarian* ($3.00 per year), Dr. A. N. Bell, editor and proprietor, 47 Lafayette Place, N. Y. It is a thoroughly intelligent and instructive vehicle of sanitary intelligence, and thoughtful readers will be both interested and benefited by a monthly examination of its pages, beside aiding in some measure in the dissemination of a class of information which ought to be, but is not, everywhere understood; and which, if appreciated, would certainly save each community scores of lives every year.—Ed.]

REGULAR MEETING OF THE BROOKLYN DENTAL SOCIETY, HELD ON MONDAY EVENING, JAN. 13, 1879, AT THE RESIDENCE OF DR. J. B. BROWN, DR. A. N. CHAPMAN IN THE CHAIR.

INCIDENTS OF OFFICE PRACTICE.

Dr. BROCKWAY : I recall a trifling incident that occurred the other day in my practice. A lady was brought to me by a friend, with considerable swelling in the gum, around the right lower first molar. She had consulted a physician about it, and he had been in some doubt as to the cause, but had cauterized it—doing no good, she came to me. I suspected that there was a concealed ligature there, left by the dentist who had filled the tooth a few weeks before, and upon reaching down with a small hook, I found one and drew it out. It was evidently a piece of gilling twine, although it was enlarged by soaking, and had produced by its presence for two or three weeks a good deal of swelling of the gum. This is a trifling matter, but shows the necessity of being careful and not having anything of the kind overlooked.

Dr. WM. JARVIE, JR : The subject before us is of great importance and one with which we ought to be familiar, viz., that of prevention of decay, and yet, if we could only prevent the occurrence of decay, we would do away with 99 per cent. of all our labors, while our usefulness would be greatly increased. I suppose if we could keep the teeth absolutely clean, that there would be no decay whatever, but as that seems to be an impossibility or certainly impracticable, we still have the question before us, what can we do to prevent decay? And the nearer we approximate perfect cleanliness, I think the nearer we will answer that question. The brush, and silk and proper powders in the hands of our patients will do a great deal, provided they are intelligently employed, for how frequently have we, in a mild manner, to rebuke a person for not cleaning their teeth as thoroughly as they should. They say they brush them so many times a day. After a remark of that kind, I usually say, you may brush your teeth as many times as you say, but you certainly do not clean them. There is a vast difference sometimes, between brushing and cleaning, and if a person would use the brush intelligently, keeping the object of its use in view all the time, I think we would see very different appearing teeth from those constantly shown us. But mouths are presented to us with the teeth arranged in such a manner that it is impossible almost for the patient to keep them clean. The teeth are set so irregular, crowded one over the other, that it is impossible to reach all the parts, and then comes in the work of the dentist in the way of prevention, so arranging the teeth that they shall make a good appearance in the mouth, and their surfaces be more easily cleaned. I think we can prevent decay as much in this way, perhaps, as in any other. Have the patient use the brush intelligently, and have the surfaces so arranged that the use of the brush and floss may be easy. I suppose, if we could go back several generations and have control of the mouths and bodies of people, and regulate the lives of each generation, perhaps we could get perfect bodies and have perfect sets of teeth. But we cannot do that, and we have to take them as we find them, and do what is best under the circumstances. After decay has occurred, another question arises, viz., how shall we treat it? If the decay is superficial, and has not penetrated the enamel, we may by files, &c., remove the decayed portion and get a fresh surface of enamel, and by conscientious work, we can get as fine a polish upon the teeth as upon any mineral substance. Where the decay has reached the dentine, it becomes necessary to fill up the cavity so formed with some one of the preparations we have for that purpose, gold, tin foil, gutta percha, oxychloride, or amalgam, but the conditions are so various, that I will not attempt to go into anything of that kind. I would refer to one point in Dr. Marvin's paper, that lateral pressure produces decay of the teeth. I do not think that the rubbing of the surfaces will produce decay.

Dr. FISHBOUGH [referring to a point in Dr. Marvin's paper] : I think that the idea of having fillings oval is a good one.

Dr. BRUSH : There was one point in Dr. Marvin's paper that struck me forcibly, and that was the question of lateral pressure. If he had written that crowded teeth afford a good lodgment for food, which ferments and thus promotes decay, I would agree with him. If we can keep teeth absolutely clean, as Dr. Jarvie says, there would not be much chance for decay. I had a case a few days ago of a servant girl in a family I attend, and she has a beautiful set of teeth, with this one exception, they are not clean by any means, and nearly all of the proximal surfaces of the teeth were decayed, especially the incisors. I gave her a lecture on the subject of cleansing teeth, and I told her it would be useless to fill her teeth unless she cleaned them after they were filled. I think that enforcing the subject of cleanliness is one of the duties we owe to our patients. It is a delicate matter sometimes with some of our wealthiest patients, and we have an unpleasant duty to perform, but we should not hesitate to perform it.

Dr. Fishbough : I am in the habit of instructing my patients as to such points as will be most liable to accumulate particles of food. There are points in every patient's mouth where accumulations are more likely to come than anywhere else. I say, "especially at that point, and that point, and that point ; because if you don't, there will be a cavity there." And I think I have saved some in that way. Give them general instructions to keep them clean, and specify particular points that are most liable to be decayed, and when they are cleansing that point, they will think of the others too. They are not so likely to think of going through the whole operation unless their minds are wrought up to the danger at some particular locality.

Dr. Fry : Dr. Jarvie speaks of the pathological condition of the decay of the teeth. I would like to ask him if he thinks it is possible for a person, adult, having started in life with a good, fair set of teeth and continued up to twenty years of age, (if they are kept clean and free from food), to have teeth very liable to decay? I would like to hear from him on that subject.

Dr. Jarvie : The nearer he approximates cleanliness, the less decay he will have.

Dr. Fry : In my experience, I would thoroughly endorse the ideas with regard to cleanliness, and I think I am sometimes a little too plain-spoken to my patients. But I have one or two cases in my mind's eye now where the cause of difficulty seems obscure. A young lady had been in the habit of coming to my office to be attended to for quite a number of years. She had very nice teeth and it was a pleasure to fill them and finish them nicely, because she had a clean mouth and was very careful of her teeth. I never could find or discover the slightest food or any debris around the mouth of any kind, and it did not seem to me there ever was any there. The gums were clean and pink and pretty. She was twenty-four or twenty-five, but occasionally I could discover small defects in places—most usually in the crown, &c., of her teeth—and would fill them as best I could, which, by-the-by, was always satisfactory in my hands. At times she would develop a cavity and she came very regularly. After awhile, I was very much astonished to find two very large cavities—very large cavities. I was astonished. I could take a scoop instrument and take out large bits of decalcified dentine from her teeth—one of them an eye tooth. I was aware she had been out of health for about two years. She told me that she had been careful during her sickness, and her sister corroborates her story that she had been assisted, during her sickness, to take care of her teeth, and in this particular case I really think there was not any food accumulated around her teeth. I have another case. I know the lady had been very careful, so that I am a little inclined to believe that there are conditions when the teeth do deteriorate, or that there are in the mouth, or around the necks of the teeth, stale fluids, that produce it.

Dr. Jarvie : That is lack of cleanliness.

Dr. Fry : It would certainly be good for the patient to circulate the fluids around the mouth more.

Dr. Fishbough : Dr. Frye don't apply the tests for acids in the saliva.

Dr. Fry : I have found alkali as frequently as acid in such cases.

Dr. Fishbough : I had a patient who has troubled me very much indeed by returning every three months with a new cavity in his teeth, or else some burring around a filling I had put in, and the cause of it evidently was the acidity of the saliva. I became almost discouraged with all attempts to save his teeth, until I finally advised him, every night before going to bed, to rub chalk between the teeth, and every day to take a teaspoonful of solution of soda or salaratus, some alkali for the purpose of correcting the acidity of the stomach; and the last time I saw him I found the treatment was attended with decidedly beneficial results. The teeth were harder and firmer, and there was very little to do to him on that occasion. That was last Spring; it may have been last Fall. I have not heard of him since, and I certainly would have heard of him if he had been in trouble.

Dr. Race : How old ?

Dr. Fishbough : About 35. I want to say one more word. I suspect that dentists do not generally fully appreciate the virtue of oxychloride of zinc in the saving of teeth. I generally have found it beneficial to fill such teeth first with oxychloride of zinc, and let them go for three or four months, and when I take out the filling I find that the dentine is mineralized—as it were, turned into stone—and afterwards find that the teeth are not nearly so liable to decay. I think if we would take cases of that kind, and not attempt to fill with gold first, but treat in that way, we would find the advantage of it.

Dr. CHAPMAN: What action has the oxychloride of zinc upon the dentine?

Dr. FISHBOUGH: It acts upon the tubuli, and I think fills them up and deposits a substance in them so as to contract them, and the chloride of zinc, acting upon them, by its astringent and mechanical properties, seems to turn them into inorganic substances. They are not liable to decay any more than stone.

Dr. FRY: I can confirm also that which has been said about the use of oxychloride. Very often we are called upon in cases where teeth have been lost, and the roots of adjoining teeth exposed. How is it that these teeth are so sensitive. Occasionally they are very sensitive. My method is this, when the tooth is not decayed: I dry the tooth around the neck as well as I can. I then dry it with a warm air bulb. I then use a very strong solution of chloride of zinc around the neck of the tooth, and that seems to act upon the tissues, because I believe the tissues are in a decalcified condition, similar to that of acids acting upon the basal substance of the tooth. I think it affects the tissues the same as nitrate of silver acts upon softer tissues; and then I dry it to a very great degree. Sometimes they complain that it is very warm; it feels sensitive. I then give it a coating of this solution of chloroform and Canada balsam. This I find to be useful. My own theory is this, that the cementum is open to chloride of zinc, and if there are any openings still, the chloroform and balsam will go in. I know this saves the teeth largely where our imperfect fillings are put in.

Dr. BROCKWAY: This subject is so broad that one hardly knows where to begin upon it. I do not know that I can say more than a few words at this time. I am convinced that two of the most important causes of decay in the teeth, most potent causes, I will say, are want of cleanliness and want of exercise. Those are causes that are present in nearly every mouth among civilized people. Disease, especially certain diseases, undoubtedly affects the teeth very markedly by vitiating the fluids of the mouth. It being admitted then that want of cleanliness and want of exercise tend to produce decay, the question arises what shall be done to produce cleanliness and exercise of the teeth. Now it seems rather theoretical, or it would have seemed so a few years ago, to say that in many cases, in a large number of cases of children, it is advisable to weed out the teeth, by that means securing greater possibilities of cleanliness from the action of the food upon the proximal surfaces of the teeth, and from the facilities with which the teeth can be cleaned with the brush and polishing substances. This weeding out also assists in preventing decay by giving the teeth more exercise, that is to say by diminishing the grinding surface of the jaws, more exercise is given such teeth as remain. It is related of one of the old fashioned dentists of New York, a gentleman who believed in and practiced the method of relieving pressure and permiting a general good condition of the mouth by the removal of the six year molars, that on his dying bed, he said he had one thing to regret, that was that he had not taken out every six year molar. Of course that is an extreme view, but I am satisfied that it is largely based upon correct principles. If I understand Dr. Marvin correctly, and I believe I do, for I see Dr. Jarvie understands him in that way, I cannot agree with him, that pressure of itself tends to produce decay of the teeth. Pressure of course must be the result of a crowded condition, and that that condition may promote decay we all admit, not from the pressure, but from the difficulty which such a condition presents to the perfect cleanliness of the teeth. That the cutting away liberally of proximal surfaces of teeth is advisable, I am somewhat inclined to believe. I should be more inclined to believe it now than I was a few years ago, but the advantage in it would not come so much from having gold touch gold in adjoining teeth, as from the fact that where the teeth are liberally cut away there will be of necessity greater space left and consequently greater facility for cleaning. I most heartily indorse the idea which Dr. Fishbough has suggested, of the valuable properties of oxychloride of zinc. I believe, with him, that many dentists do not realize the great utility of the substance ; and a great prejudice has arisen against it from the fact of its having been unwisely used. Too much has been required of it. An oxychloride of zinc filling, on a surface where it is not exposed to the secretions of the gums, and can be kept clean, will stand a good deal of wear. In any other position it is treacherous and unsafe to use ; but for the purpose which Dr. Fishbough has suggested it is a very valuable material.

Dr. Jarvie : Dr. Brockway speaks of two principal causes of decay as being want of use and lack of cleanliness. I would like to ask him if he ever saw a case in which he saw cleanliness and at the same time lack of use of the teeth.

Dr. Brockway : I do not think Dr. Jarvie exactly understood me. I mean to say that teeth may be used thoroughly, and still decay. Savages have good teeth, so far as observation shows ; and one reason of it, I take to be is, that their food is of such a nature that it gives their teeth a great deal of exercise. This, of course, does not account for it all. Another reason is that, among savages, only the very strong healthy organizations survive. I believe, of course, in the survival of the fittest, but among savages, the very fittest survives.

Dr. JARVIE : That's quite a nice point that Dr. Brockway brings in, in the use of the teeth for grinding purposes. How does that save teeth? I believe it does so from the fact that it causes a greater flow of blood to the parts, and so a larger supply of the material needed in the building up of the teeth ; among civilized people, those who use their jaws vigorously and masticate their food thoroughly, have a better set of teeth.

Dr. SCOTT : I have a patient in my office who would knock this theory endwise. There was a lady in my office who has a beautiful set of teeth, and she has never eaten anything hard, not as much as a cracker, without being soaked. She is 19 or 20 years old, and there is only one tooth at all decayed.

Dr. FISHBOUGH : I do not think that point should be passed over very slightly, as there are deep principles involved. If we could go back to the fundamental inquiry, why is it that we have teeth at all? the answer would be because there is a use for them, and the organism could not be complete in such a way as to discharge the functions and meet the requirements of the vital principles that reside in the organism unless we had these little rows of stones in our mouths to crack, break and comminute the food that it may be turned into blood and tissues and organs of the system. Now, I think if we were to go into an investigation of the primitive organization of the animal kingdom, we would find many facts in illustration of this point. Whenever an animal form is to accomplish its evolution to a higher organization, wherein an organ is required that does not exist in the previous form, there is, in the first place, a little hyperthrophied point at the very beginning of that organ, which is the preface of what is going to be unfolded when the animal of the future is completely organized. The first animals had no teeth—nothing that we call teeth, at least—but they had that which answered to teeth ; as in the case of the amæba, for instance, and the star-fish and other low forms of the animal kingdom. But without that which involved the principle of teeth, no animal could live. Now, then, if an animal form relapses into bodies that belong to a preceding animal form, and dispenses with the use of an organ, whether it is a tooth or whatever it may be, that organ retrogrades or becomes obliterated. The blacksmith's arm enlarges by exercise; but dispense with the use of the arm, and that arm begins to shrivel, the circulation going to other parts of the system. If the teeth are not properly exercised, if they are treated as useless organs, there is a tendency on their part to slough and become useless organs, and that tendency is what we call decay. Therefore, one of the most important preventives of decay is vigorous exercise.

CONNECTICUT VALLEY DENTAL SOCIETY—REPORT OF ANNUAL MEETING.

Continued from December number of *Miscellany*.

EVENING SESSION.

Called to order at 7½ o'clock, President Brackett in the chair.

Voted—To pass the subject under consideration at adjournment, and take up the third topic, to wit: "Relations of the Profession and the Public."

Vice-President Fones was called to the chair, and the President proceeded to open the discussion substantially as follows:

[For Dr. Brackett's address, see page 41.]

Prof. SHEPARD: I was much interested by the address of our President, and very heartily indorse the main points that he has made. In addition, however, to what he has said, I wish to refer to the little kindnesses, a word of sympathy, &c., which the dentist should cultivate in his relations to his patients, and especially when children are placed in his hands. In such cases, at least, we are often too much in a hurry to go about our work, forgetting that they are often suffering from pain and a nervous shrinking from the operations to be performed. By a simple word or two of sympathy for them, and by commencing gently, we may gain the little one's confidence by degrees. The exercise of kindness, with thoroughness, takes a decided hold upon our patients; and, in doing this, we shall find that they will stay by us. It pays to realize that teeth are sensitive, and to show our patients that we feel for them and have sympathy for them.

There is one other point, also, that was not referred to, which may properly be considered here: and that is, the relations which we sustain to each other as members of this Society. We are too liable to, in a measure, overlook our obligations to those who serve us in the various offices to which we call them. Now, some of these involve a great deal of work, and upon the manner and faithfulness with which this work is done depends, in a large measure, the prosperity of our Society and the success of our meetings. It is due to those who render us such service that the Society recognize their efforts, and labor in such a manner as to convince them that it is appreciated. These little amenities serve, not only to encourage those who do our work for us, but it also tends to promote a kindliness of feeling, one toward another, among all our membership. And as this seems to be a favorable opportunity, I, with very great pleasure, and in behalf of the Society, will proceed to illustrate this idea, by presenting this purse as a little token of appreciation and good will to our Secretary in recognition of his very efficient and faithful services during the past three years.

The amount is not very large, being made up from forty small gold pieces. It could easily have been considerably increased were it the purpose to offer this as a compensation alone.

I am happy to be able to assure our Secretary that this little purse has been made up with a cordiality and heartiness on the part of every one present that carries with it an evidence of good feeling and appreciation which may rightly be regarded as an expression of the sentiments of all our members. It has only been necessary to simply present them the opportunity. In no case has it required the least urging. The gift is the result of a universal impulse and desire to, in some way, manifest the common regard and appreciation of all our members. As such, you will please accept it.

Dr. Stockwell: Mr. President and Gentlemen of the Society—There have been several occasions during my past life, supreme moments, perhaps, I may call them, when I have felt that I would give almost anything were I able to summon fitting words to my lips to express the emotions which took possession of my heart. On each of these occasions I have failed: and I presume that this will prove no exception.

Had I been told by any one during the early part of the day that I should again allow my name to be used as a candidate for the office of secretary for another year, I should have replied, You are certainly mistaken; for I most assuredly had no other thought or desire than to be released from the duties of this office. And, further, had I known this afternoon, when Prof. Shephard came to me and urged me to allow him to present my name for the fourth time, under the existing circumstances, what an affirmative reply involved as I now realize it, I should very likely have declined.

Why I have been selected as the victim of your generosity I am at a loss to determine. I have in the past but simply tried to faithfully perform my duty; and had I wished a compensation, I received that compensation in full by the cordial manner you received my nomination, and the entire unanimity of my election.

For your gift, so large and generous, I can but most profoundly thank you. No one, I think, in these hard times, would scorn an amount of gold so large; but when, in addition to its intrinsic value, I think for a moment of the *sentiment* involved, I cannot regard it as other than a compliment undeserved and one that I shall cherish as unprecedented in all my life. To be made to feel so forcibly that one has the sympathy and good will of a body of men like this, is of more value than gold.

Had you voted this amount to me from the funds of the Society, I should have appreciated it, but coming so readily and spontaneously, as I am assured this does, from the pockets of individual members, it carries an expression and a compliment to be doubly valued.

Please accept my sincere thanks and this feeble expression of my deep appreciation as a token of what I *would* say if I were able.

Dr. BARTHOLOMEW: Our treatment of ourselves is something of importance. We want clean, soft hands—and this we all can have. We want the finger-nails pared gracefully, and don't want soil enough under them to raise a hill of corn.

Dr. BRACKETT referred to the little misunderstandings that are liable to occur between dentists. Now, we need to be very careful about this. A gentleman in a neighboring city had a tooth treated for two or three weeks, and it was nearly ready to fill, when, during a short absence of the dentist, the gentleman had trouble with the tooth and went to another dentist who extracted it. Now, I regard that an ungentlemanly thing to do. He should have treated the tooth temporarily until the former dentist came home.

A patient of Dr. Noble's here, came to my office in the evening, when the Doctor was away, and wanted me to treat a tooth he had filled. I did what I could to relieve her, temporarily, and told her to call and see Dr. Noble the first thing in the morning. We need have no trouble in this respect if we simply do as we would be done by.

Drs. MILLER and BRACKETT further briefly discussed the subject, after which it was passed, and the next topic, "Oral Surgery—Is it within the province of the Dental Profession?" was taken up. This question was opened by Dr. F. Searle, of Springfield, Mass.

In this paper Dr. Searle defined Oral Surgery as "The treatment, by manual operation, of the diseases of the mouth, jaws and associated parts." Dental Surgery is simply the treatment of the diseases of the teeth.

He claimed that the dentists of the present were not qualified for the treatment of all the diseases of the mouth, jaws and associated parts, and that the general surgeon is not sufficiently well informed in regard to diseases of the teeth and the influence they exert upon other adjacent tissue and organs to be good oral Surgeons. In speaking to this question I shall consider the present status of dentistry and the qualifications of the average dentist, for the practice of general surgery. I shall not include among dentists those who, having qualified themselves for all departments of medicine and surgery, have chosen to confine themselves mostly to the dental practice. The representative dentists of the day are those who constitute the large majority of those who perform with credit to themselves the various operations necessary for the preservation of the teeth. Many of these are graduates of dental colleges, while others have been instructed under private tuition. They have, most of them, given their attention *only* to the specialty of dentistry. To say that a very large majority are ignorant of the principles and practice of medicine and general surgery, would be doing them no injustice. As a body, they do not claim to be qualified for the practice of oral Surgery, except in its minor operations.

In the tissues connected immediately with the mouth may be found many, if not most, of the lesions which occur in other parts of the body, fractures, dislocations, constitutional and specific ulcers, aneurisms neuralgia, necrosis, cancers, malformations, &c., the treatment of which implies a degree of education in general medicine and surgery not usually possessed by, and certainly not required of, the dentist. That there is need of specialty in this department of medicine, I admit; but the time has not yet come when the *average* dentist should assume that the field belongs to him, and will not, until he has added to his present attainments a knowledge of the nature and treatment of constitutional, as well as local, diseases. Probably the time will never come when none but M.D's will practice dentistry, and it need not. The history of our specialty shows that eminent success can be achieved by skillful ingenious manipulators who have but a smattering of medical knowledge. Such is the nature of his operations that when he stays within the limits of his specialty, he can render distinguished service to his patrons, though not familiar with the science and practice of medicine as taught in medical schools. Do not understand me as *advocating* a low standard of education, either professional or in general, for the dentist. I simply take the profession as it is and wish to show the absurdity of the claim, sometimes made, that the dental profession is equal to any work in surgery. So far as a man becomes qualified for a given work let him undertake it, but mere *pretense* does not constitute qualification.

Under those circumstances I claim that, to-day, oral surgery belongs to general surgery rather than to dentistry. The surgeon has always occupied the place. When those engaged in dentistry have undertaken it, it has been by right of their having been educated as surgeons as well as dentists. The field is, however, open to any who are competent to fill it ; but, at present, in my opinion, it does not belong to the dental profession.

Prof. SHEPARD : I did not propose to say anything on this topic, but it seems to me that Dr. Searle has argued both sides of this question. In the *strict* definition of the term, the Dental Surgeon is confined to the teeth alone, but, if he must be confined to that *strictly*, he cannot treat the alveola process, gums, &c.

The question is not whether the profession is *to-day* qualified to go further than the teeth, but it is, whether it is not within the *legitimate province* of the profession to go further. The young men should be *encouraged* to go further than the teeth. The practice of the *future* should be encouraged to go further than simply the filling of the teeth. In a general sense, I do not see how a dentist can perform any operation on the mouth that does not come under the head of oral surgery. If he confines his operations to the teeth alone, he may properly be called an Oral Surgeon. What we need is a broader and higher culture, so that the dentist may be qualified to deal successfully with all diseased tissue of the mouth, and understand the relations of these to other parts.

I do not believe that the dentist *should* go over the whole body, but the eye is concerned, and so are other parts also ; and these involve, to a greater or less extent, a surgeon's qualifications.

Dr. C. S. Hurlbut: It seems to me that the discussion is getting to be a war of dictionaries. In my opinion, during the next twenty years our young men will need to become qualified to perform all operations in oral surgery. A few years ago it was not thought necessary to attend a dental college even: but now how is it? Some months ago a gentleman came into my office, and, after diagnosing his case, I concluded that it was a diseased antrum. I saw him three weeks afterward, and saw that it was a morbid tumor, and I felt that the first thing for me to do was to turn him over to a surgeon. Now, the dentist should be, and I think ultimately will be, able to handle these cases.

Dr. N. Morgan: By fitting ourselves to perform the higher and more difficult operations in general surgery, we are certainly better prepared to perform the minor operations that come more frequently into our hands, and, consequently, have more confidence in ourselves. For this reason, if for no other, we ought to seek to qualify ourselves in the higher branches of surgery.

Dr. Anderson: I rise because I feel somewhat guilty, having dabbled to a considerable extent in oral surgery during the last six months, since having taken up the practice of this branch of dental surgery. It occurs to me that this question, *at the present* time, is one which we must individually settle, and that will be in accordance with our several abilities. It has been admitted that, no doubt, in the future oral surgery will be legitimate practice for the dental surgeon; and also that it would be desirable if we were all competent to practice that branch at the present time. If so much is admitted and conceded, then it seems to me that it is only a question of privilege, and that those who, by inclination and education, are fitted for this practice, shall not be debarred from it by envious or incapable professional associates. Without discussing this question further, as there seems no doubt that the best practitioners and highest authorities regard oral surgery as the legitimate and larger field upon which the dental surgeon will soon be called to enter, if he would be considered first-class, and desirous of embracing as much as he can to the advantage of himself or patients. In defense of my position, I would state that, in addition to removing several tumors and abnormal growths, and assisting nature in the cure of maxillary fractures, I have a case of removal of part of the right inferior maxilla, the recital of which will be an evidence of the advantage arising from the ability to practice surgery of the mouth, and may not be devoid of interest to the members. In October of 1877, a German, aged 42 years, a miller by trade, enjoying the best of health, applied to a dentist for the purpose of having the first inferior bicuspid on the left side attended to, as it was giving him severe pain. An examination revealed the fact that the tooth had been worn down to the pulp, on account of the wear resulting from holding his pipe between this tooth and its antagonist. An arsenical application was deemed necessary, which was very *carefully* applied and *thoroughly* protected, and *repeated* directions given to the patient to call in the next day *without* fail. But, the tooth giving no further trouble, and it being a little inconvenient, no attention was given to it, until, in the course of ten days, the tooth became sore and troublesome, and he, being ashamed of his conduct, went to a *physician*, who displayed his superior knowledge of dentistry by prescribing a heavy dose of blue mass pills. From this time the case went on from bad to worse, and, although the dentist sent word for him to come and let him attend to him, his sense of shame was so great that he would not come near. Finally, he gets so bad that he is obliged to quit work and place himself under the care of a physician, who, failing of any good results, gave him up, when he fell into other hands of the medical profession. The dentist, hearing of the serious results following his call, went to see him, but the attending physicians allowed no one to see him, consequently his visit was fruitless. Time rolled around, and no improvement, but, on the other hand, the life of the man was despaired of, when I was called upon by friends in authority to go and see him, and take the case, if he could be helped. This was nearly a year from the time the arsenical application was made. Having declared my willingness to take the case, and promising a speedy cure, the other professional attendants were dismissed, and I took the case in hand. First ordering off the poultices, which had been on *continuously* for *eight* months, and in conjunction using anti-phologistic and disinfecting remedies and a more nourishing diet, in two weeks the swelling had very much subsided and a satisfactory examination possible, which revealed the fact that an operation would be necessary to remove the necrosed bone, as it had taken on a secondary form in consequence of the non-removal of the primary necrosy at the line of demarkation. Three weeks from the day the case was taken the operation was performed, after placing the patient under the influence of chloroform. An external incision was made from a point in line with the lobe of the ear, avoiding the arteries, and extending to the mental foramen. The jaw was removed entire and thoroughly, without serious injury to the periosteum or surrounding tissues; and to-day (about ten days after the operation) the patient is around the streets, and the wound has closed up, and he has engaged to go to work again in a couple of weeks, which I have no doubt he can do.

Dr. BARTHOLOMEW: What was the treatment subsequent to the operation?

Dr. ANDERSON: I syringed with phenol sodique, and kept it stuffed with lint for five days, till the granulations were well established and healing fast from the bottom; and now the edges are beginning to heal. In addition, a strong tonic was used, and the usual hygienic precautions employed. I might add that the arsenical application was in the tooth as *placed*, when the tooth became so loose that it (the tooth) was taken out, so that the partly decomposed pulp must have been its medium for the transmission of the trouble, or it might have been a salivation resulting from the use of the calomel administered by the first physician, in conjunction with the ulcerated tooth and tumors in the blood. So the real cause is not clear.

Dr. PARMELE stated a case that came into his hands recently, where the Chief Engineer of the Fire Department of Hartford, in falling from a building, received a complicated fracture of the maxilla; described the treatment adopted, and the proposed further treatment.

Voted, That clinics be held to-morrow morning, at the office of Dr. C. S. Hurlbut, at 9 o'clock.

Voted, That when we adjourn, we adjourn to meet at 10 o'clock to-morrow A. M.

Adjourned.

MORNING SESSION—SECOND DAY.

According to previous arrangement, a clinic was held at the office of Dr. C. S. Hurlbut, commencing at 9 o'clock. Prof. Shepard of Boston exhibited his method of using felt foil; and Drs. F. R. Jewett of Woodstock, Vt., and C. Stoddard Smith of Newark, N. J., put up cases of celluloid.

The regular session opened at 10½ o'clock.

Voted, To take up Article 6 of the programme, "Advantages of Celluloid in the Mechanical Dentistry."

Upon this topic Dr. F. R. JEWETT, of Woodstock, Vt., read the following paper:

That I may call your attention to the merits of celluloid, as a base for artificial dentures, I have chosen the subject, "Its Advantages in Mechanical Dentistry." At once the question arises, What are the advantages of this material? No one in the profession, that has had even a very little experience with celluloid, will dispute that it is not strong; and all agree, too, that it can be made very thin, and not impair its strength. That its color is better, and more closely resembles that of the natural gum, we all know. There seems to be but one complaint with those who have endeavored to be successful in working it. They tell us it is not durable—that it softens and decays in the mouth, and loses its color. The celluloid company, with those who use it, claim that, with a proper apparatus, care, and the material as now perfected, there is no reason why it cannot be used and relied upon as a permanent base. It is my plan to give you as briefly as possible our manner of manipulating the base, but not any original ideas relative to the mounting of artificial teeth. After taking an impression, varnishing and oiling the same, we use about a twentieth part of very fine marble dust, with enough of the finest plaster for a model. This makes a cast which, when dry, is hard and strong. The teeth are ground on and waxed up, as for any ordinary vulcanite case. In flasking, we use a much larger flask than you can find at any of the dental depots. The great trouble many dentists have experienced in the use of celluloids is the breaking down of the prominent parts of the model, while pressing the flask together. To prevent this we lower the heel of the case, and raise the point. In this way you avoid too much strain upon the model. After trimming down the blank, providing there is more material than we think necessary, we are ready to commence heating the apparatus. There should be a surplus of celluloid in all parts of the case, for we cannot depend upon its flowing. With the machine before us (Talbot's) at 220° Fahrenheit, the plate becomes soft, and will bear pressing into place. Continue to screw down the press at intervals of a moment or two, occasionally removing the flask to see if all sides are going down alike, until the thermometer indicates 240 or 260 degrees. We do not believe too great a heat improves the plate. The time required to screw down the press is from one-half to three-quarters of an hour after it is soft enough to yield to moderate pressure. Immediately after the flask is closed, we immerse the press and flask in water, and leave until cold. The process for finishing up is the same as for rubber. The apparatus we use is Talbot's (dry heat). In the pamphlet issued by the celluloid company they do not recommend dry heat. The process I have described to you is not a dry-heat process, for the moisture in the plaster generates steam, and this steam does not entirely escape while the flask is being pressed together. We used the glycerine apparatus for about a year without success. Nearly every case got broken, or, rather, the models were broken down, and we laid the machine aside. We find that plates made three years since are giving satisfaction, and, to every appearance, are good for years to come. Experience has proved to many dentists, and will yet prove to others, if they will persevere with celluloids, that it is superior to all other materials as a cheap base for artificial dentures.

Dr. C. STODDARD SMITH remarked that he thought the cause of all the failures in working this material is in not getting the models sufficiently hard. Advocated the use of coarse builder's plaster: mixing it just as stiff as possible to do and have it flow properly. Several questions were asked and answered with reference to modes of working it, there being an evident diversity of opinion as to its merit, as compared with rubber.

The Committee on membership reported favorably on the name of Dr. J. W. Keyes, of Bellows Falls, Vt., who was unanimously elected.

"Felt Foil" was then taken up, and Prof. Shepard alluded briefly to the nature and combinations of this material, saying that it ought to be received and used like all new things, with the utmost caution. Of its durability, time alone could tell; but it worked beautifully, having a putty like quality, which was of very great advantage in any material. Did not think it hard enough for masticating surfaces, but is best adapted for proximal and buccal cavities.

Dr. MILLER: I should like to ask Dr. Shepard if he has experienced any change of opinion in relation to the new departure question since the semi-annual meeting?

Prof. SHEPARD: I don't know that I have. I think that the theory of the incompatibility of filling materials is pretty much exploded, but I see wherein the wide and general discussion of this question has done a great deal of good.

It has probably served to modify, to their benefit somewhat, the practice of those who formerly discarded the use of amalgams altogether, while it may have been a damage to some, who previously were disposed to use too much amalgam. Being called upon to state the present status of the Rubber question, Prof. Shepard read a letter from a party interested defining the standing of the case and future prospects.

Voted: That when we adjourn, we adjourn to meet at the call of the Executive Committee, adjourned.

C. T. STOCKWELL, Sec'y.

FIRST DISTRICT DENTAL SOCIETY, JANUARY 7th, 1879.

INCIDENTS OF OFFICE PRACTICE.

Dr. R. M. Reynolds: Mr. President—No one else wishing to occupy the time, I would like to mention a case that has come under my care within a short time, that is different from anything that I have seen before.

The child, now about ten years of age, fell when she was seven years and a-half old, in going up the steps of her father's residence, and struck her face upon one of the stone steps, driving the two central incisors entirely into the jaw. I use the word *jaw* here for the present. Three or four weeks afterward, after all the swelling had subsided, the teeth were above the margin of the gums, and the gums were in their natural condition. She was taken to a Dentist in Cincinnati, who said there was nothing that could be done to bring the teeth down. The child was placed under my charge while I was in Paris this summer, and I knew I should not have the time there to do very much with them, and postponed the work until I came here.

The teeth were allowed to come down of their own accord. They made their second appearance and attained the ordinary length in the same manner, to all appearance, as when they grew. As nearly as I could judge, the teeth were in the original condition in the mouth in about seven months after the accident, coming down without any assistance—coming down, as nearly as the lady could describe the case to me, just about as the teeth would come in the first instance. I opened the teeth about a month ago; I decided, as a matter of course, that they were both dead; I decided, also, that the teeth were fully developed when the accident occurred. I found both of the roots about the shape of an ordinary tube, or about the shape of a goose quill that had been cut off at the small end, a very little larger, perhaps at the crown than at the apex of the root, and one of them I found fully one line, perhaps a little more, shorter on the labial surface of the root than on the lingual. I have succeeded in arresting suppuration which was going on at a fearful rate in one of them, and I saw the patient to day, having been out of town for a day or two, and find that the other one is still in a bad condition. I never saw a case like it before. I expect to be able to heal up the parts. I have removed at three different times, I think, from the one on the left side a sort of fungus growth which had worked itself down into the root, the cavity where the pulp originally was, and by cutting that away, I have taken out quite a large mass which I examined under the microscope with not very much satisfaction or information to myself, and I just mention the case to get the opinion of others here, in regard to the possibility of saving these teeth, at least for a few years.

Dr. ——— : What are we to understand by "goose quill shape,"—inside or outside the tooth ?

Dr. R. M. REYNOLDS : Inside. Almost straight, almost parallel without any cutting away, or anything ; as though it had been drilled out or cut out, not like the teeth in their original condition, but rounded out. I presume it was caused by the suppuration, perhaps, carrying away everything that was soft. I don't know but it has eaten away this portion of the tooth, leaving the apex of the root standing at an angle of 30 degrees perhaps, at right angles with the tooth as it stands in the jaw, especially in one tooth. And the other tooth being fully eight lines in length from the cutting edge of the tooth and the apex of the root, I concluded that it must have been fully developed when the accident occurred.

Dr. ———, who has seen the case says, he never saw anything like it before, and rather wondered at the teeth coming down as nicely as they did, merely a very small corner broken off, each one there standing in the mouth. You wouldn't know, except from the appearance of the teeth, which are slightly discolored, which I will remedy after a while, that anything had ever happened to them.

I will repeat what the child's mother—a very intelligent lady living in the city, the wife of the editor of one of our weekly publications—tells me. That after the swelling had entirely subsided, three to four weeks, it was necessary to throw the child on her back in order to see her teeth, they were still so far above what would naturally be the margin of the gums.

Dr. WM. H. ATKINSON : How did you ascertain the length of these teeth ? By drilling through the lingual borders.

Dr. REYNOLDS : Yes, that is the first thing I did. I thought I stated that I opened them, having decided first that they were dead. The suppuration has ceased in one of them, the other is still troubling me.

Dr. ATKINSON : Is there any necrosis of the alveolus?

Dr. REYNOLDS : You mean at the apex of the root.

Dr. ATKINSON : I mean round the necks of the teeth.

Dr. Reynolds : No, sir; you wouldn't know that anything had occurred to the teeth. I can show the teeth at our next clinic if any one wishes.

Dr. Atkinson : I wish you would.

This is a case, as stated, as far as I know unusual, and about which we don't know enough to assert much positively. But I suppose that the mass that the Doctor speaks of removing from the pulp chamber of one of the teeth, upon proper examination would prove to be embryonal matter that nature threw out for the purpose of restoring the breach, and that the suppuration resulted from the retrograde metamorphosis of that substance which nature provides for healing all wounds, and was kept up in that regard. As to its being a solvent of the dentinal structure, I have my doubts. We ought to be very careful not to let our minds run too positively as to the time when calcification is complete, not to be led too much by the statements of incompetent observers as to conditions The only reason why I accept the statement as made is that Dr. Reynolds, whom I regard as a competent observer, said that the edges of the teeth were on a level with the margin of the gum in their normal position as late as the time when he saw the case in Paris. That makes it very remarkable, and involves a number of very interesting histological questions as to the condition of the junction between the connective tissue that has been called peridentium, and the hard substance named the alveolus or socket in which the teeth rest. I asked the Doctor to present it at our next clinic, because I want to see it. I think it an instructive case, and I thank the Doctor heartily for the description, and bringing it before us.

Before I take my seat, I will, with the permission of the chair and the society, speak of an incident in my own office, of a child of this same age, a bright boy, fairly organized, with rather a soft constitution, flabby flesh and soft, easily moved and flexible joints, so that you could bend the fingers back to touch his wrists without hurting him, presented for advice concerning the central incisors, their cutting edges having been broken off by some sort of missile in the hands of a playmate. One of them was broken clear across the tooth. If you have caught the kind of constitution that is indicated in what I have said, you will recollect that the two plates of enamel, the labial and the lingual, oftentimes come in contact with each other and form the cutting edge of the tooth until you get up one-quarter or one-third of the length of the crown of the tooth, and thus rendering them more liable to be fractured by a clip. All accounts stated that the teeth were not uncomfortable, further than from the roughness of the edges and a slight tenderness for several weeks after the injury. The child had been seen by several members of the profession, and the mother, not satisfied to permit them to trim them down, as they proposed, by filing them, was advised to send the child to me. As soon as I looked at the case and made the necessary examination, I determined the proper course to pursue, not, however, with the file, for I never do it with a file. I do it with a thin corundum disc, and with this it can always be done more delicately and accurately than by a file, and in very much shorter time. That was done, and the teeth were cleaned. Upon examination it was discovered that the right temporary molar had been removed, the first and second temporary molars had been removed previously, and the first bicuspid was well through, and no appearance of the second bicuspid, the first molar badly decayed, the pulp dead and with morbid growth around the roots. I looked at the other, the left inferior first molar, and found it in like condition, so far as the tooth was concerned, but not so far dissolved away and broken down on the lingual border. And I said to the aunt, who brought the child, the mother having been unable to come, "The preservation of these teeth I always advocate; but, unfortunately, this child has been neglected too long to enable me to honestly tell you that any effort, however persistent, can be crowned with satisfactory success, and if these teeth are extracted, it involves the absolute necessity of extracting the upper ones corresponding to them," which were not so decayed, but that they might have been saved very well. And, as there was very considerable objection made by the aunt, I said, "I presume that Mrs. Hull sent the child for advice that was better than what she had herself:" and she says, "She wished you to do whatever you think is best." "Well, then," I said, "I will extract his four six-year molars." "Then you will give him gas?" And here we had to discuss that whole question through, and I will tell you, shortly, what I said to her. "I don't know but I may injure the child by giving him any kind of an anæsthetic. I know that I can extract the teeth without injuring him more than a temporary hurt at the time of the dislocation of the teeth from their place; and, if you receive my advice, you will allow me to do what I think is right and what I am willing to do. And, if I am estopped here, why, then, I must decline any further charge of the case. But I say to you that you had better not allow this child to take an anæsthetic from any man, however strong an advocate he may be of the safety of an anæsthetic." "Well," said the aunt, "I think that it will hurt the child to extract these?" And, at the risk of shocking some of you, I will tell you what I said, "Yes, it will hurt like the devil — there is no mistake about that. But it will only be momentary, and I guarantee that if you will let me have the child I will take the teeth out without injuring him further than this immediate suffering. So, if you wish me to go on, you go and divert yourself in the parlor and leave the child to me." She did so, and I extracted the teeth to the great joy of the child, although he was not very joyful while I was doing it. Both the lower molars were covered with the embryonal growth that I have already indicated around the roots. The upper roots were clean and thoroughly healthy, as far as I could judge.

Dr. REYNOLDS: Dr. Atkinson must have misunderstood me entirely. The peculiarity of the case and the reason why I stated it was that the teeth came back themselves to their natural position without any effort whatever. The child was taken first to a surgeon in Cincinnati, and he said the teeth were broken clean off; better wait a few days until the swelling subsided, and then take out the roots. She was taken afterwards to a ———. I would like to ask Dr. Atkinson if there is a Dr. James in Cincinnati?

Dr. ATKINSON: Yes, sir; a dentist, whose surname is not "James," but he is so called to distinguish him from his brother. Their surname is Taylor.

Dr. REYNOLDS (resuming): and he said that there could be nothing done to them at all, that they were probably broken off. And in four weeks afterward, the lady informed me—and I think she is competent to judge of the case, too—that the swelling had subsided entirely; so far as she could judge, she said, the child had recovered entirely from the accident It was necessary then to turn the child right back in order to see the teeth, and they came down in about six or seven months after in Europe; they came down very nicely themselves. That is the reason I stated the case.

Dr. ATKINSON: There is one other little lapse. Dr. Reynolds said, first, "surgeon," and then "dentist,"—and that is what we get by this cross-questioning and searching after conditions, so that we may master all the situation, not to jump at conclusions, but to know thoroughly first the anatomy, and then to know faithfully the condition when it presents.

The dentist in Cincinnati, of whom Dr. Reynolds spoke, is Dr. James Taylor; he is generally called "Dr. James."

Dr. ————: I will ask the age of your patient ?

Dr. ATKINSON : Ten years. I said "a like age," and he, Dr. Reynolds, stated ten years.

Dr. C. S. STOCKTON : Mr. President, I had a case to-day at one o'clock, of a young lady about nineteen or twenty years of age, who had trouble in her left superior canine tooth, which troubled her quite a good deal. Touching it, it was sore. There was no dead tooth anywhere near it, the tooth was perfectly sonnd. My diagnosis was that the tooth was dead, the pulp had died. I drilled into it and found that to be the fact. Why should that tooth have died ? The young lady is in fine health; she has a fine set of teeth, appears never to have had a blow upon the tooth, no filling in it—a perfectly sound tooth.

My next patient, at three o'clock, was a young girl, I think, of about fifteen or sixteen. In 1874 she had a tooth filled; the pulp was evidently exposed, capped over by *gutta percha*. The tooth never gave her any trouble until about a year and a half after it was filled ; I think she told me then she had considerable pain in it, and by some application she got rid of the pain, and to-day in finishing up I found this filling, the tooth filled with amalgam. I took the whole thing out, found that the pulp in the palatine root was dead, in the anterior buccal root was dead, in the posterior root the pulp was alive. What would have been good practice in that case?

I will tell you what I did and you may condemn it or approve it, as you like

I cleaned out the roots of the palatine and the anterior buccal and filled them up with oxychloride of zinc, cauterized with carbolic acid the pulp in the anterior root and filled it over with acidulum, and then filled the tooth permanently to-day.

Dr. C. E. FRANCIS, of New York : Mr. President : Dr Stockton's interesting case reminds me of a similar case. A young lady called on me this afternoon with a devitalized canine tooth. I asked her the cause of it ; she didn't know. "Did you ever receive a blow upon that tooth ?" "It has never been touched." But still it must have been injured in some way I think sometimes children in biting very hard substances, as ice, are very apt to devitalize a tooth, or in playing "blindman's buff," and other such games. I have known persons to injure teeth badly and be unconscious of it at the time,—how often little mishaps of that kind are overlooked and forgotten. But I think the case of Dr. Stockton and the case that came to me to-day, must have been the results of mechanical injury.

QUES. (By a member) Was the pulp in your case entirely devitalized?

Dr. FRANCIS: I haven't opened it yet. The tooth was greatly discolored.

Dr. STOCKTON: The tooth, in my case, was not discolored at all. When I removed it, it came out with an explosive sound, showing that it had evidently just died within two or three weeks.

Dr. FRANCIS: This was decidedly discolored.

Dr. BROCKWAY, of Brooklyn: Mr. President: I had a precisely similar case to Dr. Stockton's, *although it did not occur to-day*—a young lady about twenty. While operating in her mouth, I noticed that the right lower central incisor was seemingly slightly discolored, so slightly, however, as scarcely to attract attention, and I diagnosed a dead nerve in it and drilled through it. There was no mistake about that. I will say, as Dr. ——— said, it was "as dead as a smelt." [Laughter.] I was not able to determine, from questioning the patient, that she had ever received any injury to the tooth in any way, and it was difficult to account for the death of it. I don't see how a blow, unless it should be a very severe one, would be likely to produce death of the pulp. Certainly, we are in the habit of giving blows to teeth, in the process of filling them, and sometimes pretty severe blows, but I never have known of but one case of death of a pulp occuring from it.

Dr. FRANCIS: A gentleman called on me within two weeks, who said one of his central incisors was very sore to the touch. I saw that the tooth had an opaque appearance, and I said, "I am very much afraid that you have destroyed the vitality of that tooth. How did you injure it?" Well, he said he was playing "blindman's buff," I think, and his tooth came in contact with some furniture in the room. He was blindfolded at at all events. Said the blow was not severe. "Well," said I, I will not open it to-day, you try it for a week and see the result of it. The tooth was quite sore to the touch. I applied aconite and iodine. He called the week after; the tooth was no better, and I opened it and found the tooth as dead as the pulp of which Dr. Brockway spoke. I removed it, and have since filled the root.

Dr. S. G. PERRY: I would like to ask Dr. Stockton what he thinks he has gained in capping over the pulp in one of the roots of canines, the other two roots having been filled?

Dr. STOCKTON: I don't know that there is any advantage except the mere gaining of time. With all the unfavorable circumstances of the putridescent pulp in the other two canals, this in the posterior root remained alive. If it would remain alive with all that surrounding stink, it ought to remain alive with health, and sweet things surrounding it.

Dr. S. G. PERRY : Mr. President, I don't think the question of time comes in there properly. Such cases of pulp vitality we meet with frequently. I cannot believe that Dr. Stockton was quite correct in practise. I know he will be sustained by a great many of you. I know Dr. Atkinson will sustain him. But I am afraid he will have occasion to do something with that tooth yet some day. At all events, if *I* should fill it in that way, there would still be left a lingering doubt, that sometime I would be called upon to take out the filling and go to the end of the root. I don't see what is to be gained for a young person at the age of his patient—16 years, I believe, he said—with an exposed pulp in a tooth ; but, if I had such a case, and I wanted to keep the tooth as long as possible, however, hoping that it might become consolidated, I should make an effort to save the pulp alive, as I do for most cases of exposure. But to attempt to save a single root of a tooth in that way, when the other two roots have been filled (under the gum)—no advantages, that I can see, compare with the danger of trouble that may come. I should not think it would be the right thing to fill that tooth in that way. The wound is so easy to plaster up together, (if I may use such a term), in healing, that I should not be confident of that tooth retaining its vitality later in life. Dr. Stockton speaks of the persistency of the pulp in retaining its vitality, yet, the other two roots died. The opportunity then was so favorable for destroying the pulp and taking it out. We know very well, from a long experience, that with the pulp removed, and the root filled carefully, so carefully that there shall be no infiltration at all, that the covering membrane of that sweetened tooth will be so safe comparatively, that I should feel more security in taking out the other pulp, and in filling both roots as carefully as possible. Because, after all, in a case of such a tooth, we have to regard the periosteum as of the chief importance : if that can be retained in a healthy state, that tooth should be useful for a long time. The chance is so great of leaving a possible irritant there that I should not feel that that was good practice.

Dr. M. H. DODGE : I have a rather peculiar case that is similar to the case reported by Dr. Stockton, of a young lady about eighteen years of age. It is about a year ago that I first saw that case. The two central incisors, both superior and inferior were dead. She came to me with very much pain. I diagnosed the case as carefully as I could, and I was satisfied that the pulps were dead in four teeth. She said she had never bitten anything—didn't know why they should die in that way. I opened into the pulp of the right superior incisor and I found it dead. I filled it immediately, and there never has been trouble from it. As to the left one, she said she thought she wouldn't have the operation performed then, so I left it for about two months from that time, when she came to me. The tooth had ulcerated and formed an opening. Then she was ready to have it treated, afterwards I opened into it and filled it. It healed up right away and she had no further trouble from it. Then I treated the other two, the lower ones in the same way, and she has not suffered from them since. I don't know what to attribute her trouble to, unless as she had a very short upper lip, I concluded she must have gone out in the cold and taken cold in them.

NOTES.

Ohio Dental College.

ALUMNI REUNION—To be held in Cincinnati, Ohio, March 6, 1879.—At the close of the last session of the Ohio College of Dental Surgery, it was decided by those interested who were present to hold a reunion of all the Alumni at the time of the next annual commencement, when it is proposed to have every class that has ever gone out of the institution as fully represented as possible. The object of the reunion is to bring together the graduates of the college upon the Tercentenary Anniversary, that they may revive acquaintance and pledge themselves anew to give her that support and aid which enhances the usefulness of educational institutions.

A general committee, consisting of one member from each class, was appointed, whose duty it shall be to interest their respective classes in the meeting, and to furnish pithy biographical sketches of deceased members. They will also give the leading items of interest pertaining to the classes, present location, status, etc., of the members, the reports to be made in the order of graduation.

The executive committee appointed will attend to all arrangements necessary for the success of the meeting and entertainment of those attending. It is earnestly desired that every one will respond to this call, and by his presence give assurance of continued interest in his time-honored Alma Mater.

GENERAL COMMITTEE.—A. Berry, of Cincinnati, O., of class 1846; A. S. Talbert, Lexington, Ky., 1847; J. S. King, Pittsburgh, Pa., 1848; E. Bray, Evansville, Ind., 1849; J. Ramsey, Springfield, O., 1850; J. C. Clark, Circleville, O., 1851; J. C. Whinnery, Salem, O., 1852; Joseph Richardson, Terre Haute, Ind., 1853; E. Collins, Little Rock, Ark., 1854; R. C. Reid, Anderson, Ind., 1855; E. Osmond, Cincinnati, O., 1856; H. A. Smith, Cincinnati, O., 1857; S. L. Bracy, Raymond, Miss., 1858; E. Ruth, Maysville, Ky., 1859; J. A. Watling, Ypsilanti, Mich., 1860; A. Evens, Hillsboro, O., 1861; Wm. Taft, Cincinnati, O., 1863; W. N. Morrison, St. Louis, Mo., 1864; J. I. Taylor, Cincinnati, O., 1865; C. C. Chittenden, Madison, Wis., 1866; Henri L. Ambler, Cleveland, O., 1867; J. P. Holmes, Terry, Miss., 1868; J. S. Cassidy, Covington, Ky., 1869; J. M. Porter, Toledo, O., 1870; J. E. Cravens, Indianapolis, 1871; J. H. Warner, Columbus, O., 1872; T. S. Hacker, Indianapolis, Ind., 1873; L. L. Dunbar, San Francisco, Cal., 1874; C. B. Mower, Wooster, O., 1875; C. I. Keely, Oxford, O., 1876; A. L. Brown, Cincinnati, O., 1877; Thos. A. Stephenson, Cincinnati, O., 1878.

EXECUTIVE COMMITTEE.—J. Taft, Chairman; J. S. Cassidy, H. A. Smith; E. G. Betty, Secretary.

PROGRAMME—THURSDAY, March 6, 1879,
2 P. M.

Organization of meeting.

Calling the roll.

Miscellaneous business.

Historical address—Dr. George Watt, class 1854.

Reading of reports from general committees in the order of graduation.

The evening to be devoted to an entertainment, sentiments, toasts, etc.

Effort is being made by the Faculty to extend and render attractive the Museum of the College. The co-operation of the Alumni is earnestly desired in this work.

Donations of Specimens and Models of Anomalous Cases are respectfully solicited. Send to H. A. Smith, Dean, 286 Race street, when suitable acknowledgement and thanks for the same will be made.

How to Cough.

To some persons, coughing is harmless, but to others it is fraught with many dangers. It is, therefore, important to teach those liable to be injured by too severe or prolonged efforts at coughing how they may accomplish their purpose easily, safely and quickly. Dr. J. M Fothergill (*Phil. Med. Times*, Dec. 7, 1878), says: "It must be insisted upon that the chest be well filled with air before the cough is let loose ; that is, the reflex act must be inhibited by the exercise of the will, until the chest be well filled with air before the cough is let loose. Such full inspiration is effective not only in removing the source of the irritation, but it usually causes other masses of mucus and charcoal to slide from their seat, and thus to set up further cough for their removal. But, if the full inspiration plan be followed, these masses are readily and quickly expelled." Of course, these directions are of use only in such coughs as are for the purpose of removing some offending matter from the air passage.

Mississippi Valley Dental Association.

The thirty-fifth annual meeting of the Mississippi Valley Dental Association will take place in Dental College Hall, Cincinnati, Ohio, on the first Tuesday in March, 1879, at 10 o'clock A. M.

OFFICERS.

President—Dr. Frank A. Hunter.

1*st Vice-President*—Dr. J. S. Cassidy.

2*d Vice-President*—Dr. J. W. Jay.

Recording Secretary—Dr. E. G. Betty.

Corresponding Secretary—Dr. C. I. Keely.

Treasurer—Dr. J. G. Cameron.

E. G. BETTY, Sec'y.

Tribute of Respect.

At a meeting of the Dental Association of Norfolk and Portsmouth, held on Monday, Jan. 20th, 1879, the Chairman stated that they had been called for the purpose of adopting resolutions of respect and condolence on the sudden death of Dr. E. C. Robinson, late a member of this Association. On motion, it was

Resolved, That in the death of Dr. Robinson our profession has lost its oldest member, and one whom we ever respected for his professional skill and liberal knowledge of his profession, and whose integrity and honesty of purpose have been manifest to all that knew him.

Resolved, That while we extend to his family our expression of sympathy in their deep affliction, we most sadly feel how inadequately we express the sense of bereavement to those who have lost a devoted father and a true friend.

Resolved, That this Association attend the funeral in a body, and that a copy of these proceedings be forwarded to his afflicted family.

C. W. Martin,
M. F. Daughtery,
J. Linn,
Jos. R. Woodley,
E. Outhriell,
Wm. B. Wise,
W. H. Ginrich,
J. N. Webster,

Deciduous Teeth.

Last Tuesday, Dr. Thomas removed a few deciduous teeth from the mouth of a child, but towards morning, Wednesday, the hemorrhage from the cavities became so great that Dr. Hoke was called in to check it. Wednesday afternoon, the blood having started again, with the assistance of Dr. E., Dr. H. etherized the child and cauterized the cavities. Again, that night, hemorrhage set in, even to syncope, and being sent for, I checked the flow by passing a red-hot needle up the cavity. On the separation of the slough, the blood again commenced to flow, and thus it has gone on until this morning, since which time the wound is quiescent. The child nearly died once before from the effects of a nasal hemorrhage. An uncle of the same person died from a hemorrhage of the mucous membranes.—*Dr. Cleland, in Detroit Lancet.*

Surgeon and Mechanical Dentist.

The following letter appeared in the correspondence column of the *British Medical Journal*:

Surgeon and Dentist.

"Sir: It may interest 'Physician' to know that a precisely similar case to that mentioned by him in to-day's *Journal* was reported to me a short time ago as occurring in Clerkenwell. I at once instructed our solicitors to write to the person who had assumed the title 'Surgeon and Mechanical Dentist,' to the effect that if the word 'surgeon' was not erased without delay, proceedings would be taken against him under the Medical Act (1858). After consulting a lawyer, the offender obliterated the word 'surgeon,' and has since put in its place the word 'operative,' to which no objection can be taken. If 'Physician' will furnish our solicitors with the particulars, I have no doubt they will induce the person he complains of to conduct his practice under a less misleading title.

I am, sir, &c.,
George Brown,
Hon. Secretary
Medical Defence Association.
12 Colebrooke Row, N., October 5th, 1878."

Dental Diploma Committee.

The following is a reprint of a form, just issued by the Dental Diploma Committee, to be filled up by candidates who purpose presenting themselves, through that committee, for examination at the Royal College of Surgeons in Ireland :

Form to be filled up by intending candidates for the dental diploma of the Royal College of Surgeons in Ireland :

1. Name and address.
2. Age.
3. How long in practice at above address, or elsewhere ?
4. Whether carrying on any kind of business in connection with or distinct from dental practice ?
   a. If so, what business ?
5. Whether employing advertisements or public notices of any kind in connection with dental practice ?
   a. If so, furnish specimens.
   b. If not now, how long is it since you did so ?
6. Whether holding any other diploma. license or degree.
   a. If so, what are they ?

Please give name and address of some clergyman or minister, or two medical gentlemen, to whom you are personally known, and who could, if applied to, furnish confirmation of the facts stated above.

Signature (full name), Date.

N. B.—A complete and faithful reply to queries 5, *a* and *b* is of the first importance.

When filled up, this form should be returned either to John O'Duffy, Esq., L.D.S.I., 5 Gardiner Row, Dublin, or Richard Rogers, Esq., L.D.S.I., Cheltenham.

A Dog's Tooth Drawn.

The other day Dr. Macclaster, the dentist, noticed that a dog was evidently suffering from a tooth that had ulcerated. He induced the animal to open its mouth, applied the forceps, and extracted the tooth. During the operation the dog sat quietly on its haunches, and stopped moaning, appearing to fully realize what the doctor was about. After the tooth was drawn, the animal expressed his gratification in many ways.—*Portland* (*Me.*) *Press.*

Intemperance in Sweden and Norway.

The *Bullelin de l'Agriculture* (*L'Union Medicale*, Nov 16, 1878) relates the following original method by which drunkards are treated in Sweden and Norway : Chronic drunkenness is punishable by imprisonment. The only food given to the drunkard, whilst he is in jail, is bread and wine ; the former broken up and soaked in the latter at least an hour before it is served.

The first day the prisoner accepts his meals with great pleasure ; the second day, the bill of fare, according to his ideas, is rather limited, and the following days it is only with increasing difficulty that he can force himself to eat a morsel. After eight to ten days of this treatment, such a distaste for this food arises that the prisoner condemns himself to total abstinence.

After leaving the jail, drunkards, with very few exceptions, are so radically cured that even the odor of alcohol produces in them an invincible disgust.

Death from Lockjaw.

EASTON, Penn., Feb. 3, 1879.—About two weeks ago a young lady named Alice Clymer, residing at this place, had two decayed teeth removed. Nothing serious was thought of the operation until yesterday, when she commenced suffering from lockjaw. She died about noon to-day in great agony.—*N. Y. Herald.*

JOHNSTONS'

Dental Miscellany.

Vol. VI.——*March, 1879.*——No. 63.

REPORT ON THERAPEUTICS, BEFORE THE AMERICAN DENTAL ASSOCIATION.

BY **FRANK M. ODELL**, D.D.S., M.D., *Chairman of the Committee.*

Mr. President, Ladies, and Gentlemen of the American Dental Association:

As Father Atkinson has poured out upon your devoted heads a most thoroughly exhaustive dose of "inflammation," it occurred to me that I could do no better than to second his efforts by working you all up into a regular

FEVER.

And then, if I am so fortunate as to be able to rivet your attention upon the subject of my discourse long enough to enable you to mentally arrive, with me, at those tartarean temperatures so prolific of wailings and gnashing of teeth, I shall, with full faith in the wise and gentle therapeian divinity who presides over this department, proceed in the performance of my functions as her minister to deliver you therefrom; and with such a full and free deliverance as shall, I trust, make you forever after, able, single-handed, to cope with this demoniac presence, in whatever form of anxious horror it may present itself.

To be forewarned is to be forearmed; but to be forearmed with an armamentarium, which is invincible in any emergency, is to have the hand and the mind in so enviable a state of steadiness and self-conscious-power, as to make the battle a very one-sided affair, indeed, and the ministers of the goddess whom I serve sure victors in every contest.

All departments of medicine, and of each of its divisions, have a disposition so strongly marked, to glide into each other, that to sharply draw the separating line is often a merely arbitrary measure. Just where normal histogenetic and histolytic actions cease, and inflammatory action begins, is a point as yet too fine for pronouncement. In like manner, the exact dividing line between the inception of the acceleration of reparative or inflammatory action, and the corporeal state nominated "fever," is often very misty; but so close is their relationship that it is not too much to say that every interference with the regular ebb and flow of the various nutrient currents, is productive of a somatic or local condition, simulating or directly resulting in a more or less pronounced feverish manifestation.

So long as the regular processes of nutrition proceed in rythmical order, the temperature of the body remains at a point most conducive to its ease and functional integrity; but the slightest interference, whether from clogging of the various debouchures of the body, or from obstruction of function of organs deeper seated, induces such a struggle for resumption of the normal interchanges, as to immediately call forth potential energy sufficient to restore the equilibrium.

Every such systemic exhibition of intensified force (nominated *Vis medicatrix naturæ*), being an increase in the rapidity of molecular interchanges (always productive of development of heat), immediately causes a rise of temperature in the locality where the acceleration of action takes place; and this thermic elevation is, ordinarily, immediately compensated through the various *media*, by heat-dissipation.

Any obstruction to this heat-dissipation, whether local or somatic, tends to induce Fever; hence these pyretic conditions are the most frequent morbid states falling under medical observation, and possess a most powerful attraction to the medical mind.

A bodily temperature of 98.5°-101.5° F., what is termed feverishness very often obtains, in the case of children, without necessarily implying danger; and yet a very slight elevation above this point indicates serious complication; and at 107° to 108.5° F., the poor body has attained a febrile altitude at which existence is possible for only a brief period, and recovery hardly to be thought of.

At the normal temperature of the body, oxygenation of muscular tissue goes on very slowly; but with a sustained high temperature the blood current becomes *filled* with débris of nitrogenized tissues; and the rapid wasting away of the sarcous elements during high fevers, is one of the most astonishing manifestations with which the medical mind is familiar, and one which, to the *patient* seems the most disgustingly unnecessary: their sudden loss of muscular-power being always the, to them, most unaccountable.

This bodily state, (muscular weakness and sustained high temperature), indicates the typhoid condition: not necessarily typhoid-fever, or typhus-fever, which are the result evidently of a specific poison, but a condition calling for great conservation of the powers of nutrition nevertheless, and indicative of the mode of treatment to be pursued, not only in this, but in every case so far as temperature is concerned.

Increase of bodily temperature must obviously result from one of three sources, viz: (1) Augmentation of heat-production, (2) Diminution of heat-dissipation, or (3) A combination of increased production and impaired dissipation of heat.

Now what I wish to impress upon you at this time, is doubtless just what you have always known and in a measure practiced, but perhaps I can throw a little more light upon the *reasons* for that practice, and so make it more consonant with the indications which in each case present, and more generally and speedily successful; and in order that you may the better comprehend the therapeusis, I beg leave to lay before you the basis upon which the treatment is built.

Biolychnion (from the Greek *βιος*, "life," and *λυχνιον*, "a lamp" animal-heat or vital-heat), is that temperature of the body which in the normal or healthy condition is always maintained regardless of the temperature of the surrounding atmosphere.

This normal temperature is marked by Fahrenheit's thermometer at 97.5° to 98.4°. Within this slight range of temperature is health. A rise or fall of one degree is temporarily induced by ingestion of food, by exertion, or by stimulation: but any depression below 97.3°, or any elevation above 99.5° is, if persistent, a sure indication of disease.

These facts, collated from a very large range of hospital practice, prove beyond doubt, the value of the thermometer as an auxilliary of the first magnitude in diagnosis.

Indeed, Dr. Alfred S. Loomis, of New York City, a physician of remarkably extensive experience, speaks of thermometrical observations as follows:

1st. An abnormal temperature determines the presence of some disturbance in the animal economy.

2d. Thermometrical observations aid us in discovering the *laws* which regulate the course of certain diseases.

3d. When the normal thermometrical course of a disease has been determined, its diagnosis is simplified.

4th. The thermometer indicates quickly and certainly any deviation in the course of many diseases (meaning those whose course *has* been determined), the transition from one stage to another, and the commencement of convalescence.

5th. It reveals the occurrence of complications.

6th. The height of the temperature decides the severity and danger of a disease.

7th. It often reveals the imminence of a fatal termination.

8th. It sometimes shows the impossibility of the continuance of life.

9th. It is an important guide as regards the effects of remedial agents.

10th. Certain degrees of temperature indicate fever!

The maintenance of this point of Biolychnion which is of course in a state of constant oscillation, is due to a variety of inciting circumstances, the study of which, with a proper appreciation of the significance of each, gives us the key to all treatment having for its object the control or direction of these processes; and the measure of our ability in practice depends entirely upon our *regular* apprehension of these phenomena.

Movements among masses, molecules, or atoms, whether of construction, aggregation, or destruction, (or separation, elimination and extrusion), result in the evolution of heat. By a natural inference we apprehend that from the time of prehension of ingesta, through all its changes of location, in insalivation, deglutition, digestion (which comprehends manifold combinations and separations both mechanical and vito-chemical, including chymification, chylification and absorption), to assimilation, which implies nutrition, and oxygenation, oxidation and disintegration which involve resorption of histolytic elements into the circulation and transportation to the various somatic emunctories, where, by the selective power of the epithelial elements constituting the glandular apparatus charged with these functions, until secretion and excretion close the circuit, all of which movements include polarization and de-polarization, heat is freely evolved, which being the result of the combined action of *all* the molecules, would serve to maintain the temperature far above the point compatible with corporal integrity, were it not for most wonderful provisions for heat-dissipation, which by *counter* action serve to maintain the happy norm wherein lies safety to the organism.

By a little reflection you will perceive that in the above correlation is implied if not expressed, all the known processes whereby not only the *immediate* wants of the system are supplied, but provision for a steady and unintermitting supply of heat effected. It is not necessary for me to go into a categorical enumeration of the processes for storage of glycogen in the liver, and liberation of hydro-carbons from sarcous and adipose tissues, but I will at once proceed to a consideration of the provision made for heat-dispersion : which in our treatment for fevers is a vital point for medical consideration.

Heat dissipation is affected normally and principally by the skin, and to a considerable extent by the respiratory tract. Circulation of the blood in the cutaneous vessels and in the pulmonary capillaries results in considerable radiation of heat into the atmosphere; free blood supply rouses the sudoriparous glands to action, and by evaporation of the product of their functional activity very considerable heat-dissipation follows. Dilatation of the cutaneous vessels, permitting a great flow of blood therein, results in increased radiation of heat, and contraction of the internal capillaries in decreased heat-production. Cold drinks reduce temperature by direct abstraction of heat, and perhaps by direct addition of the principle of cold. Warm drinks, which at first raise the temperature, if continued until the action of the sudoriparous glands is accelerated, will afterward depress it in consequence of increased transpiration.

Massage (from the Gr. *μασσω*, "to knead,") being the manipulation practiced by professional rubbers and magnetists, and at the Turkish bath, is another most excellent mode of reducing excessive heat-production and promoting heat-dispersion, or *vice versa*, according to the requirements of the system, on the principle of restoring tonicity, whereby the organism is enabled to resume control of the functioning activities.

To make this proposition more apparent to the minds of those who have had no responsible experience in this direction, I might be pardoned for referring to the treatment which your essayist adopted when suffering from that, to most minds, alarming exanthematous visitation (I purposely avoid the term "affliction"), small-pox.

Before the formation of any blebs, and after two days of racking pain in every muscle, and apparently in every bone, together with a feeling of tendency to delirium, as evidenced by cephalalgia of a dull, unendurable variety, accompanied by great elevation of temperature, the headache being quite evidently due to circulation of detritus of sarcous elements in the blood current, as well as to the thermic elevation.

Thorough ablution in warm water and soap, preparatory to the religious duty of "Massage," which, under my direction, was efficiently performed by a faithful and anxious wife, and followed by another washing with warm solution of pure spirits (commercial crude alcohol), as a cutaneous stimulant, resulted in immediate relief from all the distressing symptoms, together with a plentiful crop of cuticular elevations, which made their appearance within the ensuing six hours. The treatment had been addressed simply to the reduction of temperature, and the result which immediately followed, doubtless due to profuse diaphoresis, by the determination of the fluid constituents of the lacunar and vascular areas of the body, to its cutaneous surface, whereby the glands took on an intense vicarious action, resulting in the plentiful production of blebs, and their gradual attraction of the histolytic products of the febrile action, which, by relieving the other emunctories of the congestive crowding of toxic-egesta, and by consequence of the necessity for excessive action, naturally resulted in resumption of normal functional oscillations of endosmose and exosmose, secretion and excretion.

The subsequent treatment of this exanthematous fever consisted in the careful surgical evacuation of each bleb, when filled, of its contents, so as, on the one hand, to avoid the action of the escaping escharotic fluid upon the adjoining healthy cuticle, which is readily accomplished by means of minute pieces of bibulous paper applied to the margin of each bleb as opened, until no more fluid extrudes, and, on the other hand, to avoid pressure upon the blebs, the deep extremity of which, resting upon the highly sensitive papillæ of the true skin, would, under pressure, wound the same, and produce scar-tissue where there would otherwise be no mark remaining.

Subsequently the surfaces of the blebs should be kept constantly bathed in some emollient, as glycerine and water, or vaseline, which relieves the superficial epithelial scales of their stiffness, and constant consequent inclination to augment the systemic inflammation by epidermical irritation. By avoiding nitrogenous food, and persisting in the employment of the most perfect sanitary regulations, and avoiding all excitement, the latter stage of the treatment becomes a mere exercise of patience, abstinence, and avoidance of thermal variations, neglect of which precautions might protract convalescence.

Covering the face with something to exclude the atmosphere, as with a mask of dough, has been much practised in this connection ; but the weight, and points of attachment, of the mask, frequently *cause* the very scarring which it is designed to prevent.

During the progress of the fever, cooling ingesta, such as apples, tea without milk or sugar, and stewed fruits, are in order and act kindly, being likewise very grateful to the palate ; much of the cooling properties of such food, being due, I have no doubt, to the influence of the action of color ;—the blue's and the purple's.

For a novel and philosophical exposition of the influence of color upon all natural processes—I refer you to a very beautiful work just published, entitled "Principles of Light and Color," by E. D. Babbitt, D. M.

With your permission, I will again refer to the clinical thermometer ; in order to a complete outline of the method of using which for diagnostic purposes, it must ever be borne in mind that a single thermometrical observation is an important element in diagnosis only when taken in connection with other physical signs. The pulse and number of respirations should always be noted at the same time. *Frequent* observations should be taken, at regular diurnal and nocturnal intervals, so as to note the *rate of variation*, as well as the mere *fact* of variation.

These observations should be made at any point of the body where the instrument can be entirely enveloped by the tissues ; the mouth being, in this connection, as in history or narrative, the least reliable.

In the analysis of histolytic products, we have, in the single item of renal-excretion Urea (so long as no renal complications exist), a guide to the bio-thermal condition of the patient, quite equal in accuracy to the thermometer ; the excess of excretion of Urea over the normal elimination (which in different individuals ranges from 400 to 500 gr.'s daily), marks the severity of the fever, or the intensity of the interchanges induced by this morbific presence.

In the direction of apyretic agents, our materia medica overflows with diaphoretics, depressants, various methods of applying cold, and the more scientific methods of acting upon the circulation, and through *it* reducing the pyresis.

Some remedial measures are addressed to decrement of heat-production, others to increment of heat-dispersion ; while others depend upon the cooling effects of increased transpiration.

Even bleeding and leeching are excellent means of reducing or diverting inflammations, threatening congestions, or fevers.

Acids, both mineral and vegetable, present efficient defervescent agents, and citric-acid is almost a specific in scurvy. Fresh air and sour wine ve, single-handed, coped successfully with the fever-fiend.

Dilute phosphoric-acid, aromatic sulphuric-acid and hydrochloric-acid, are agents in high favor with many practitioners : acetate of ammonia is a favorite remedy, especially for children. Those diaphoretics which are at the same time depressants, as ipecacuanha and tartar-emetic, are exceedingly effective : but aconite, in its action in controlling inflammation and concurrent fever, is one of our most reliable and wonderful remedies ; it should be administered in the early stages of pyrexiæ, half a drop, to a drop, of the tincture of the root in a teaspoonful of water, every ten minutes for two hours, and afterwards hourly.

Chloral-hydrate, which is in high favor with many, does not enjoy my confidence to the same degree ; because, acting by paralysis of the nerve-centres, it is apt to astonish the patients by their translation into the next higher sphere.

Such measures as have been indicated are proper in cases where the temperature is sustained, in consequence of defective heat-dissipation where restoration of dermal function is sought ; but in many fevers we have a plentiful transpiration accompanied by increasing temperature. Such a case I had last summer, where, while talking with the patient, who, though very weak and anxious, was still able to be about house and attend to her duties, the water would actually drip from the arms and head.

Here we had plentiful provision for superficial heat-dissipation, but increase of heat-production to an alarming extent, nevertheless ; this was a case directly induced by a combination of irregular and inappropriate food, frequently omitted altogether through disgust at the surrounding filth, malarial emanations from garbage stored in most unlikely places, and elevated atmospheric temperature, with slight constipation.

My first blow was struck in this latter direction, by a cathartic, followed next morning by a draught of citrate of magnesia, and large draughts of cold water ; this treatment was immediately supplemented by my sheet-anchor in such cases, Quin. sulph., administered in large doses until cinchonism is produced ; in this case requiring only sixty grains, administered in one dose of gr.XXX, and three doses of gr.X each, and all within twelve hours.

In a case of parturition, I have likewise administered quinine with marked benefit to the patient, reducing the temperature from 102° to 99° F., within two hours.

In some cases quinia seems to be rejected by the absorbent vessels ; in such instances, administration in milk or soup will often promote its ready assimilation, but where it is absolutely rejected, as after long use it sometimes is, or where it is productive of unpleasant symptoms before accomplishing the object sought, it can frequently be substituted by salicylic acid, which is apt to meet, in such instances, with a kindly reception, and which in drachm doses produces a decided thermic depression. A combination of salicylic acid with quinia also acts charmingly.

But, in the proper regulation of bathing appliances with an intelligent use of the thermometer, which includes consideration of the causes of the pyrexia and the consequent best manner of combatting it, I place quite as much reliance as upon medication.

And we are now approaching an era when the proper use or direction of the so-called "*finer forces,*" together with a study of the influence of LIGHT and COLOR, bid fair to in great measure usurp the field now occupied by the more ponderable therapeutic agents.

FIRST DISTRICT DENTAL SOCIETY, JANUARY 7th, 1879.

INCIDENTS OF OFFICE PRACTICE.

(*Continued from the February Number.*)

Dr. MILLS : As we seem to be in the line of dead pulps. I had a case, in the month of October, of a gentleman about 35 years of age, who had the pulp of the central incisor destroyed at about the age of ten, by a blow. Nothing had been done to it up to the time I saw it. It had turned something of a straw color. In taking care of his teeth I insisted upon opening that tooth ; he rather objected to it ; he didn't see the necessity of stirring it up. I reasoned with him, and finally I opened the tooth, and the results were very similar to the one Dr. Brockway has told us about : and I found that which proved to be interesting to me and something that was really worth while. He is the brother of an eminent physician in Brooklyn, boarding in his own family ; he has been treating the gentleman for something like eighteen months for catarrh ; and after my treating the tooth with injections of medicine, which I injected into the nostril and down into the tooth, he had no more trouble and catarrh, and it is as sweet as a rose.

Dr. ATKINSON : I think the opportunity too valuable to allow it to slip ; my conscience will not permit it, for the love I bear all the brethren here. I am specially happy to-night, and my affections are very vivid indeed, and especially do they go out toward my beloved brother of New Jersey.

What is the question involved? It is the nutrition, he says, of the periosteum, the peridontium, the connective tissue that covers the root and lines the socket. Whence is the nutrition derived that supports the cement which lies immediately under this membrane? Principally from the periosteum, most men would say. I am sorry they are not better microscopists. If they would study the anatomy of the structure then they would know better and feel more solicitous to preserve even the fragment of the pulp that is at the very apex of the root of a tooth, for the purpose of keeping alive the filament of nerve that goes from the main branch down into the pulp.

Now, for the competency of the examination, and why two of the canals are occupied by dead pulps and the other one a living pulp. The very fact of the sloughing from the other two roots, was proof positive that nature had already set to work and set up a line of demarcation, to limit the inflammatory process. There were, already, embryonal corpuscles thrown out so as to protect that pulp, purified by the carbolic acid, and afterwards covered over by the oxychloride of zinc.

Dr. Perry: The point is simply this: Is there enough to be gained in attempting to save that pulp alive, to justify the risk that is taken? Dr. Atkinson loses sight of the possible danger that may come. When I spoke of guarding the periosteum as much as possible, I had reference, of course, to the consequence that follows the devitalization of a tooth. The patient goes away to come back some day with a swollen face. I say that the danger of a swollen face will be very much lessened if the remnants of that pulp are taken out at once. Do not let us lose sight of that fact. It is not so much to me a matter of the nutrition of the tooth; it is the service of it to the patient afterwards, the safety as well as the service. Because where there are risks involved in that way, for other persons, we ought to be careful. Let us take all the risks we choose, for ourselves, but not for others. We know very well how often pulps die when they have most favorable conditions, even without any exposure at all. Now, I claim that the conditions are most unfavorable for the safety of that pulp for a life-time. We should look far into the future. I do not doubt but what pulps can be kept alive; we have all seen cases of persistent pulp vitality. But I only deny the advisability of it in general practice.

The Chairman: The Doctor will recollect that he is going over the different speakers' ground. The last speaker looks forward to the death of the pulp, and the first looks forward to the life of it.

Dr. PERRY: If the pulp might remain alive? But even then would not the tooth itself be made better by the nice care that would be given to it? We have seen in the hands of old practitioners a great many failures from the destruction of the pulp. But they did not remove the pulp from the pulp chambers and fill the root, as is done now. When that is done thoroughly, the tooth can be made serviceable and kept so for a long time, with the risk reduced to a minimum.

Dr. ODELL: It seems to me, Mr. President, that the doctor answers his own question. He expects that the trouble will arise from the remains of this pulp, while, if we can save that pulp alive, I can't see that there will be any remains: it is all life and no remains to it. I wish to make a remark in relation to what either Dr. Perry or some other gentleman said who spoke of the death of pulps, and wished to know if it was necessary that a *blow* should be given to cause death of the pulp. Anything which checks the flow of the nutrient currents through the pulp, even for a moment—anything which causes an obstruction, a sudden, profound sensation, although not in itself causal, may result in the death of the pulp. I have in my family two children with three dead pulps, two of them dying immediately subsequent to shock, produced by biting simply upon the peel of an orange. They are all deciduous teeth.

Dr. PERRY: Just one word more. I did not ask the question to which the last speaker referred. Some other gentleman must have done so. I would not like to be understood as opposing salvation of pulps. I can understand Dr. Atkinson's desire to save living protoplasms, having seen it with him in Dr. Heitzmann's laboratory; that is all right, if he don't go too far. I will meet any of you more than half way in the saving of pulps, if reasonably exposed in teeth that may be made serviceable; but I have not yet been brought up to the point of attempting to save them in roots in this way. Dr. Stockton invited criticism. There is a question which I wish might be started. Dr. Atkinson has hinted at it, but we have had no discussion upon it for a number of years. That is, how we stand, this Winter of 1879, on the extraction of six-year molars? I suppose as long as we practice it will be an interesting question to us.

Dr. ATKINSON: If I shall be permitted to give my reasons again that I did give to all who are in earnest and believe me to be in earnest in what I say to my brethren, they will remember that I detailed my reasons to the aunt who was in charge of the child, and the seat of my affections move and tremble now at the recollection of how I had to whale myself into the discharge of the duty because of the fervid affection I bore the child: and I did kiss the dear little boy farewell, and told him he was a noble man, and the angel's smile was left in my affections, and I have been warm ever since. The point is this: I am not advanced one single step further than confirming my former views. I was not responsible for the child's being neglected, so that those teeth were an offense to him, so that on one side, the left, he couldn't chew. Then I determined to extract them. And you will bear me out. In my writing and in my speaking, I have said, in the earnestness of my soul, to my beloved brethren, that if they had to extract one six-year molar, as they loved righteousness, to take out four, in consequence of the morphology of the mouth, the convenience of the chewing apparatus, and we could go into a very interesting discussion to detail all the experiences and failures, and all of the reasons why we should do this; one of them, and not the least, is that in civilization there is not enough action generally brought to bear upon the masticatory apparatus in its mechanical movement to develop according to the type of the American masticatory apparatus; and when the six-year molar is taken out you are much more liable to have a good wisdom tooth than you are if it is not taken out—without you will reverse all the bad teaching, such as "Now don't you crack any nuts." "Don't do this or that," of all the grandmothers and grandfathers, and the aunties and the nobodies in the world. In place of saying, "God bless you, crack all the gravel stones that you can, and just go it while you're young." It is because of my knowledge—and when I say knowledge I mean it—knowledge of the morphology, gained from long, serious, earnest travail, prayerful, laborious effort, to understand how this type does come into sufficient hardness and arrangement, this masticatory apparatus that has been so long neglected; and neglected by the men that we might have looked to for aid, the anatomists, the physiologists and the medical men, and brought us, by the grace of God, to pronounce the plain truth of heaven to every man, that we must *exercise* an organ to bring it to the fullest measure of its development. Now, I am tender yet about the extraction of those teeth. I don't want to delay you: but have gone into it, so that I might stir you to the very depth of your fraternity and paternity, so that you would feel all the time a responsibility in diagnosing and treating cases. The decay had gone so far at the lingual border of the crown reaching to the root, I had actually to go down into the bifurcation of the roots to get a secure hold. And how do you extract a tooth? It may be well to say to some men who shut up their eyes and tug away, and attempt to jerk it out, to keep your eyes open and the parts in sight, and separate the dentinal ligament with a blunt-edged instrument or spud and just peel it off like a white man, and get down to the connection, and lift a little of the free border of the marginal process, and then take forceps exactly adapted to the tooth, and creep down with a heavenly love, and get hold of it while your whole protoplasm is like jelly; all movement for the affection you have for the child, and keep your eye right on it, and make an effort to start it one way, and if it resists, try another, and you won't have made the fourth motion until it yields; don't cease until you do make it yield; you might split off the process or fracture the child's jaw; with a little bit of rotary motion, out she comes all right. That is what I mean by extracting a tooth. Is that the way those fellows do that give gas? Sometimes they get no further than to crush off the crown, and then they come to me with a root that has to be taken out; and sometimes I take it out for nothing, and tell them they had better pay something (if able to pay), and let the reflected agony wipe out by a vicarious atonement to them that shall follow you.

Dr. Dodge: Were the second molars irrupted at the time you extracted those six year molars?

Dr. Atkinson: That is a very good question but it convicts the dear brother of paying no attention to what I said. I said the child was ten years old, and he must have had a case of irregular development, if it were so. When these six year molars are very badly decayed, the only excuse to save them is that the twelve year molars haven't come through, when the extraction will not admit of a good masticatory apparatus. A ten year old child I have never seen with a twelve year molar, except in one instance, in my whole experience; and there would be a bad chance for the child to eat for the next six months; but he had better eat on his bicuspids and let the twelve year old molars come into the place of the six, and give him a good sound masticatory apparatus afterward. And so, when we want to be instructed, it is well for us to have our mental pockets open, in order to carry away what we can.

Dr. Dodge: I have seen, however, six cases! (and you have practised a great many years longer than I), where the twelve year old molars were fully developed at nine and a half. I have seen two cases where the wisdom teeth were fully developed at thirteen.

Dr. ATKINSON: That is very good instruction; and let me suggest another morphological consideration. Those are short-lived people. If you will look up their ancestry you will find that they died of old age at thirty-five or forty, and that kind of stock is not worth raising. [Laughter.]

Dr. PERRY: I think Dr. Atkinson has been making some very wise remarks. I am very certain that in quite a number of cases in my own practice—when I hadn't the courage, or indeed, knowledge, years ago—when people have brought children to have six year old molars extracted, that I have done harm in trying to save them. It has been gradually forced upon me that there are cases (I don't know how many; of course, it is useless to attempt to enumerate), where it is better to have the six year old molars extracted; so that, perhaps, some of the old practitioners were nearer right after all. I have in mind one family, particularly, which was in the hands of some other dentist, and it had been a practice with them to have all the six year old molars extracted, decayed or sound as they might be. Coming into my hands I thought it my duty to try to save the six year old molars, and did so. The result has been that the teeth are coming forward, the laterals overlapping the centrals, and there is a most unsatisfactory condition in the mouth in general, and decay of the centrals has been more certain. I noticed in the other members of the same family, four of them, I think, in every case,—it being a family trait, mind you—this narrow jaw and the teeth quite of a V shape, as Dr. Reynolds would say, perhaps, a very intellectual family; in this case, where I have saved six year old molars, there was this crowded condition and an unsatisfactory condition of the laterals and centrals. With every other member of that family the teeth are nicely in line, the decay has not been very frequent of the bicuspids and molars. For cousins of the same family, where there is the same family type, rather narrow jaw and the tendency towards pointed teeth, for all that family I have saved all the six year molars, and every one of those children have this same pointed condition of the teeth and the tendency of the laterals to lap over the centrals before the wisdom teeth come through; the wisdom teeth coming through first and then crowding the others forward the laterals overlap and crowd forward. It has been sometimes a question in my mind, whether this family would not have been better off if these first molars had been taken out. It may be said that the forward wisdom teeth had better be sacrificed as soon as they are arrived under the gum; here, as has already been shown, the front teeth are crowding forward and decay was going on and a great many cavities had to be filled: and I have no doubt there was a great deal of hard work that might have been saved had those six year molars been extracted. I would not have mentioned this matter, only I think there are a great many young men who think that they must always save six year molars. I think that has been accepted doctrine for quite a number of years; but I am inclined to think that a good many six year old molars are saved that had better be sacrificed. I think Dr. Atkinson is correct when he says, "If you take out one, take four." I have found it so in my practice.

Dr. CLOWES: As the six-year molars are under consideration, of course, I am on hand. In the first place, in regard to that live nerve or portion of live nerve. With my present idea of treating teeth of that kind, I should say that I should take means to have that portion, that branch of the nerve, follow the two that were dead. As we cannot call the two back to life, I should let the live one follow the dead, and then I would fill, as our friend from Newark would remark,—I would fill that promptly, and expect to have success. I would expect my patient to have a good time in after life. Now, that is my present impression of the proper treatment of the case. But I am about to attend a course of lectures under Dr. Heitzmann. It may be that I am all wrong, that I shall wake up to my past errors—it may be, I don't say that I shall. I think I have tried this thing long enough to know, but at the same time I am always ready to learn and be instructed. I wish that more of the brethren would commence with him next Thursday evening.

Now, in regard to six-year old molars. That is one of the most interesting subjects in the whole profession; there is nothing to equal it. Why, you can do more good by extracting six-year molars, in that one act, than all the rest that you can do in your lifetime. Just think of it! What a wonderful thing that is! In one motion, in one act, you can do more towards making and establishing a good set of permanent teeth than all the other acts that you can do during your whole lifetime. And why should you not do it? Why, I am delighted to hear my professional brother coming around to my side. Why, I thought he was so fixed and grounded in opposition to me that I thought that he would never come around; but he is coming around all right.

Dr. PERRY: Dr. Heitzmann did it.

Dr. CLOWES, resuming: Now, only think of it, how correct he is. He says if you extract six-year molars you must extract the whole four. That is it exactly. If you pull one, or if you pull two, you will spoil the whole thing. Either the whole four, or none—as sure as you are alive, that is the thing. Now, you know I have talked a good deal on this subject, and I have been about as emphatic as I could be upon it. Occasionally the question would be asked me: "Do you always extract six-year molars?" I said no; not always. There are cases where it is not worth while to. But I say always, *always*. If you have a young patient under your care and the patient or the guardian says, "Do the best you can by this young man or this young lady," I say, always extract them. Now, the reason why I said formerly that I thought it bad policy, that there were exceptions, was because I had a few cases where the development was splendid; the jaws were large, the teeth were regular, and so there are a few cases where I allowed the six-year molars to remain in. One of those cases I have seen within the last three days, and I found the bicuspid decaying between them, and it is a wretched mess, just because I had left them in as an exception when I thought it was not necessary to extract them. [In answer to a question.] I would extract these six-year molars at the age of twelve or thirteen years; seldom later. After the thirteenth year, then we must, if necessary, abstract a twelve year molar. You see you must not always extract the six-year molars, unless you do it at the right time. These things must be done by judgment. There are times when the twelve-year molar is the proper tooth to extract; there are times when to extract the wisdom tooth is the proper thing to do.

Now, in regard of the strength of this tooth. Dr. Atkinson seemed to think that it is an excellent tooth. Why, the six-year molar is never an excellent tooth; it is always a weak affair; it is the weakest of all the molars, and you know it, gentlemen. As you look into the mouth of your patients, look into it; the three to five weakest places are in its enamel; the twelve-year molar from four to five weakest places, and the wisdom tooth seldom has more than two weakest places. That is the difference in the strength of the different teeth. I explained that long ago. I said the wisdom tooth was the strongest of all the molars, and there is plenty of evidence to prove it, and I did prove it to you one night, and you said it was a pretty little tooth; and after I got through somebody said: "Why do the wisdom teeth decay so freely?" Ah, why don't you take care of the wisdom teeth? And it was argued here that you don't let your brush touch it. But take away the six-year or the twelve-year molar, or anything that allows the wisdom teeth to come forward.

Dr. Brockway: I would like to ask the question Dr. Mills put; that is, at what age should six-year molars be extracted—that is, for a young child, and why?

Dr. Clowes: Why, now, I say about 13 years.

Dr. Brockway: Before the irruption of the twelve-year molar?

Dr. Clowes: No; just about the time that the twelve-year molar comes in. If you take it sooner, then there will be nothing to eat on. There may be a disarrangement of the teeth that have come in. I say to the guardians of my patients, we must hold on to this six-year molar, if we can, until the proper time to lose it. I don't pull six-year molars at all times; I keep these until we see the twelve-year molars just peeping through the gums.

Dr. Perry: In a few cases, too, that I recall now, I have endeavored to get at the result we would obtain by extracting six-year old molars by taking out the bicuspids: that is, perhaps, when I feel that something must be sacrificed, and I must gain more space, and I don't feel justified in extracting six-year molars when the twelve-year molars have not yet come. I have got good results in extracting the bicuspids and giving the wisdom tooth more room, and the front teeth not being crowded forward. In the two cases that I recall I am very certain that I did the wise thing. My opinion is that a little later is the time for extracting the six-year molars—from twelve to fifteen years of age. It is often surprising how long after teeth have been extracted some of them take to come together, while many times they sidle up together as though they had an attraction for each other.

Dr. Francis: A young lady called upon me with a lateral incisor that was very badly discolored and had an abcess at the apex of the root. After cleaning it out properly and curing the abscess, I filled the root, and the other day I bleached it. I bleached it after the method advocated by Dr. Atkinson recently, by using Labarraque's solution and alum, the first form. I filled the root first; then, after a few days, I applied chloride of soda and alum to the tooth simply, and it whitened up immediately, and looked very different. In a few minutes I syringed it out and filled it with gutta percha and allowed it to remain a few days longer, and then put in more of the bleaching preparation and then finished filling the tooth with gold. The tooth is almost as white as the others; it was a very dark, dingy, blue looking tooth.

Dr. Mills: Perhaps I can aid in the discussion of the six-year molars, because I had a case in June of a young lady with something of the character of the constitution that Dr. Atkinson described—large eyes and big ears associated with it, about fourteen or fifteen years old. She had an overcrowded condition of the teeth, and, as I was told by her father, had had her teeth regulated fourteen or fifteen months previously, and all brought into line. The superior laterals were shutting inside of the inferior when I saw them, and I was told they had all been made straight at one time and had all gone back again; quite a poor organization of the teeth in general; one of these highly sensitive, nervous patients, and rather a vitiated condition of the saliva. Some filling had been done in the way of amalgam filling. The six-year molars were very poor teeth indeed; two of them were filled; two of them, I think, the pulps were dead. In looking that case over, I decided, with some deliberation, what I would do. I took out these four six-year molars (I have the models of them at home, with the natural teeth inserted in the models, and some day I will show to you the results of the extraction of these molars); they were extracted in June. She went away and returned again in September. I showed her how she could shut those laterals by simply biting on a stick, which she did, and the teeth have grown regular themselves, and the spaces are more than a half or a third closed in that time. I saw them on Saturday, and they are improving constantly, and the entire condition of the mouth is very much improved, as regards the cleanliness of it and generally. I have one case of a patient with very broad jaws and a somewhat overhanging condition of the central incisors, laterals and bicuspids of the superior maxilla. A little over a year ago, the guardian, after considerable deliberation, I am told, studying books, &c., not knowing what to do, went to work and had out the lower six-year molars and stopped, while the upper ones were overhanging the lower very much at that time. A year has passed, and the overhanging has increased, of course, and of course the best thing to do is to take out the upper six-year molars. But it seems to me in that case it would have been better to have taken out the upper six-year molars, and even to have waited for a long time. They were first-class, excellent teeth, although there was some decay; very large, strong teeth. As to this matter of six-year molars and the extraction of them, I think I am competent to form some judgment from my observation; and I do not indorse the idea of this making a statement without any modification. Dr. Clowes put the question in this way: He extracts all six-year molars. I have seen some shameful abuse of this in the hands of a man who claims to be an "A No. 1."

Dr. Clowes: He did it at the wrong time.

Dr. Mills: He claims to be intellectual, and he makes this statement that you do. I have seen admirable results in some cases from extracting 6 year molars. I have seen a great many cases, and I speak within bounds, because I see a great many patients where the teeth had been taken out, the bicuspids, and sometimes two in the mouth and even three turned clear round in the buccal root, in close proximity to the 12 year molars, and decay going on in them. As I fill teeth myself, I have seen that in one particular case, and to a great extent. I saw it in another case, where the 6 year molar had been extracted (the same children), but as it seemed to me with rather more discrimination. I am inclined to think that it may be the more valuable practice in cases of the overcrowding of teeth; I think in quite a large number of cases, that the extraction of the bicuspids is what would be required to bring about the condition that Dr. Clowes speaks of,—would be in cases that would make an amount of space that he didn't require. So, while this question has its advocates right and left, there are a great many men who do not discriminate, and yet make the same statement; and hence, while not opposed to the extraction of six year molars to some extent, I do not indorse the statement as it is.

Dr. Johnson: Allow me to ask a question as regards the statement of the practice of that first-class dentist. Are you fully enough acquainted with his practice in order to make this statement? Are you sure that the extraction of those teeth was not forced upon him when the teeth separated as much as they did and turned around. Perhaps the child was brought to him and the tooth was decayed away, and the gum may be ulcerated. Can you say that it was not under these circumstances that the teeth were extracted?

Dr. Mills: I am willing to vindicate myself, I know what I am talking about. This first case I saw in the man's office; he is major-domo of this practice, and what he does, he does by authority. This case was brought to my attention many a time, and I can prove the statement which I make. I know positively, in several instances where he has had charge of a family right straight along for 27 years from the first, the father and the mother and their children,—and so I know what I am talking about. The gentleman has complete control over the practice that he has. I used to be surprised at the willingness and the cheerfulness with which patients used to sit down in the chair,—they did'nt even wink. But he took the teeth out with gas.

Dr. CLOWES : I said always extract 6 year molars. Yes, I said that,—*when it is necessary?* [Laughter]. Now, I say, a man has got to have some judgment,—he is not a mere machine, you know. And now suppose a patient came to me with may be the laterals not irrupted, and not likely to be, no permanent lateral, no permanent canine, some teeth looking through : Do you suppose I would extract a 6 year molar under those circumstances? That would be the greatest folly in the world to do that. *Extract them always when it is necessary,*—and I tell you that is almost *always.*

TRANSACTIONS OF THE ODONTOLOGICAL SOCIETY OF GREAT BRITAIN.

ANNUAL GENERAL MEETING, January 13th, 1879.

ALFRED COLEMAN, Esq., President, in the Chair.

The Minutes of the previous Meeting having been read and confirmed,

The President announced that the following gentlemen had been nominated for election as members :

WILLIAM EDWARD MARGETSON, M.R.C.S., L.D.S., Eng., Roscoe House, Dewsbury, Non-resident.

GEORGE HENRY CROTHER, 1 Bond Street, Wakefield, Non-resident.

JOSEPH JOHN HUXTABLE SANDERS, 72 High Street, Bangor, North Wales, Non-resident.

THOMAS BALCOMB, 56 Pembroke Terrace, St. Hellers, Jersey, Non-resident.

WILSON HOGUE, D.M.D., Harvard, U.S.A., Bournemouth, Non-resident.

W. HERBERT WOODRUFF, L.D.S., Eng., Leamington, Non-resident.

ARTHUR SWAYNE UNDERWOOD, M.R.C.S., L.D.S., Eng., 11 Bedford Square, Resident.

EDWARD PERCY MAY, M.R.C.S., Eng., 46 Euston Square, Resident.

EWEN MUNTEICH TOD, L.D.S., Eng., 9 Old Steine, Brighton, Non-resident.

Mr. HENRY exhibited models of the upper and lower jaws of a young gentleman, aged seventeen, which presented the following peculiarities : In the lower jaw all the primary teeth were present and there were no signs whatever of any of the permanent set. In the upper jaw the only permanent teeth which had appeared were the central incisors and the bicuspids. As there had been a considerable gap on each side between the primary canines and the first bicuspids, Mr. Henry had removed the former and substituted a pair of artificial canines. The crowns of the lower incisors were worn almost level with the gum.

Dr. FIELD showed an improved Morrison's engine, which he had purchased during a recent visit to the United States, and which he believed to be the only one of that pattern as yet introduced into England. The chief advantange which it possessed over other machines, of the same kind, consisted in the short and very flexible arm, which could be made to work at angles, which could not be managed with any other machine. The arm was exactly balanced by a spring, so that there was no weight on the hand of the operator; the coned journal-bearings made the machine surprisingly light and easy to work.

The President said he should like to see White's machine simplified by doing away with the outside sheath of the arm and substituting a rotating wire cord. The machine could then be worked at almost any angle, which, as Dr. Field had stated, was not possible at present.

Mr. James Parkinson showed a curious extracting instrument which his brother, Mr. George Parkinson, of Bath, had found among the effects of a deceased surgeon, and which he had sent for presentation to the Museum.

Mr. Oakley Coles exhibited (for the inventor) specimens of Mr. Hempel's new springs and swivels.

The President thought the invention would prove a valuable contribution to mechanical dentistry. It was a very common occurrence for patients to break or bend their springs: by means of the arrangement Mr. Coles had just described, they could be replaced or adjusted with much less trouble than formerly. Mr. Rogers, years ago, introduced a very similar plan of swivel.

Mr. Hutchinson bore witness to the value of the invention, and mentioned the case of a lady who had worn a pair of very light springs, attached according to Mr. Rogers' plan, for thirteen years without accident.

Mr. McCleod showed a new mouthpiece for a saliva-ejector, which had been invented by Dr. Orphoot, of Edinburgh. It consisted of two parts: the first, which was designed to remove the sublingual secretion, consisted of a German-silver tube bent into an ogee form. To the upper end of this a bright metal disc could be attached, which served as a tongue-guard, and also as a reflector, to throw light into a distal cavity. To the lower part of the tube another tube, made of block-tin, was soldered, and to this the saliva-pump was attached. Block-tin was chosen because it could be readily bent without risk of breaking or cracking, and in the case of stout patients it was often necessary to bend the tube outward. The second part of the apparatus was intended to remove the parotid secretion; it consisted of a perforated tube of india rubber about four inches long, which was tucked up under the upper lip and into each cheek. To one end of this a tin tube was attached, which descended to the saliva-pump from the side of the mouth opposite to that on which the operator was at work. The two tubes were secured by an adjustable clamp placed somewhere below the chin of the patient. The apparatus could be fitted to any of the saliva-ejectors at present in use.

Dr. Field, after making a personal trial of the invention, said he considered the sublingual mouth-piece the best he had ever seen, but he doubted whether the parotid tube would be of much practical use. A pad of paper placed over the orifice of the duct answered every purpose, and was less irksome to the patient.

Mr. Hutchinson also expressed his approval of Dr. Orphoot's mouthpiece, but called attention to the necessity for very careful soldering at the junction of the silver and tin tubes; a small orifice in that situation would render useless the whole apparatus. He agreed with Dr. Field in thinking the parotid tube unnecessary. A pad of amadou was the best thing for closing Steno's duct; with this he was able to arrest all secretion for from 1½ to 2 hours.

Mr. May showed a model of the upper jaw of a patient, one of whose central incisors had been driven up into the inferior meatus by a fall.

The President then read a communication from Mr. Fletcher, of Warrington, respecting a new filling with which he had lately been experimenting. It was a hard, white substance, composed of silicate of lime and alumina, slightly translucent, and was altogether the most perfect imitation of enamel he had ever seen. With the view of showing its chemical stability, Mr. Fletcher had submitted it to the following tests: He had filled four teeth, and had immediately, within five minutes, placed one of each in the following solutions, viz, strong hydrochloric acid, strong liquor ammoniæ, a nearly saturated solution of citric acid and vinegar. They were allowed to remain in the solution, suspended near the top, until partial or total destruction of the tooth enamel had occurred. Mr. Fletcher claimed that "no other white filling known would stand any tests approaching these in severity; they will withstand one or two of the solutions, but not all of them; the liquor ammoniæ especially is rapidly destructive of all white fillings. His material would withstand all except the strong hydrochloric acid. The other teeth, after remaining in their solutions for from fourteen to twenty-four hours, showed only slight disintegration of the surface of the stopping, to about the same depth as the tooth enamel had been affected. The plugs had all been put into cavities with the weak edges left, and without being excavated; the material was merely pressed in with the finger and smoothed off with a penknife, and the surface was not burnished or condensed in any way. It was exceedingly nice to work, and was to a certain extent translucent, and had not the dead opaqueness of other white fillings." Mr. Fletcher had sent him the four teeth referred to above, and he would hand them round for inspection.

The President then called upon Mr. Rogers for his report as Librarian.

Mr. Rogers said he was glad to be able to report that the library was in a very satisfactory condition. The books were in a good state of preservation and were steadily increasing in numbers. The only volumes missing were Garretson's *Oral Surgery*, and Heath's *Diseases and Injuries of the Jaws* (Second Edition); and as these had been missing for three years, he feared they were hopelessly lost.

He had one unsatisfactory fact to report, and that was that the number of books borrowed had fallen to one-half of the usual number; only fifty volumes had been taken out during the year. He was obliged to add that this falling off was chiefly due to the fact that, owing partly to press of other work and partly to ill-health, he had not been able to attend to his duties as librarian as regularly as he should have done. He had on a previous occasion tendered his resignation to the Council, assigning these very reasons, but he had been requested to hold the office a little longer. Now, however, the bad effects of his remissness had become so evident that he felt bound to renew his application to the Council, and had prevailed upon them to accept it. He felt sure that his successor, Mr. Weiss, from his well known literary tastes, would do all he could to restore the library to its former state of usefulness. He might state that since he had been librarian the number of books had increased from 568 to 840, an increase of 50 per cent., and, of course, the labor of looking after them had increased also. In order to make the library and museum as readily available for study and reference as they should be, it would be absolutely necessary to appoint a paid official, who should combine the duties of sub-librarian and sub-curator. He feared that the funds of the society were not yet in a state to justify the outlay which this step would entail, but he had hopes that before long a Library Endowment Fund might be started with the view of carrying out the suggestion he had made. The facilities which the post would afford, with the library and museum at command, for the carrying out of original investigations, would, he felt sure, make it acceptable to good men, even at a very moderate stipend.

The President said he felt sure members would hear with regret that Mr. Rogers had felt compelled to resign the office of librarian. In his report he had omitted to state that he had presented a copy of Kölliker's *Manual* to replace one which had been lost.

With regard to the Museum, Mr. Charles Tomes stated that he had brought all the new specimens under the notice of the Society from time to time, and he had no special report to make.

The President then called upon the Treasurer, Mr. James Parkinson, to read his report, which will be found appended to the present number of the Transactions (see p. 61).

Six members having been proposed in the usual way, the President selected Messrs. Stocken and R. Woodhouse to act as scrutators of the balloting lists.

The President then proceeded to deliver his valedictory address.

PRESIDENT'S ADDRESS.*

GENTLEMEN : The hour has now arrived when I must restore to your hands the important trust you confided to me a year ago. When I assumed the highly honorable office of the Presidency of this Society, I admitted the great probability of my own short-comings, but the certainty of the compensating ability of my colleagues. In both prognostications I have been only too correct, and, therefore, if our Society has made a fair progress during the past year, all credit for the same must be attributed to the latter. That it has done so I am encouraged to believe, as in the number of our members we can happily show an increase over any preceding year, while under the fostering care of our able Treasurer, our finances are in a condition truly enviable in such times as the present.

Our ordinary monthly gatherings, which we must ever regard as the mainspring of the Society, have shown during the past year an excellent attendance, and the discussions on papers and questions raised have certainly been equal, if not surpassing in interest, to any in former years.

Our first meeting was occupied in the discussion of casual communications and in a short address from myself upon assuming the office of President. At the second, our March meeting, we were favored with a paper by Mr. C. S. Tomes "On some forms of Dentine Calcification, with notes on their bearing on dental pathology," a paper expressing in the clearest terms our present knowledge of the various forms of dentine, and suggestive of certain pathological conditions that may be explained by an insight into their various modes of development. Personally, I am much indebted to Mr. Tomes for having at a short notice produced his paper to supply a hiatus The April meeting was of a somewhat novel and experimental character, being the discussion of a mooted point in relation to the treatment of dental irregularities, viz: "Extraction *versus* Expansion of the Dental Arch." Both views of the subject were ably treated in the discussion; and although no definite conclusions were arrived at, it was a meeting that could not have been other than instructive and practically useful, especially to junior members.

In May we were favored with a paper from Mr. Hildich Harding, "On the Absorption in Bone and Tooth Structure," and which, from the research and care it exhibited, augurs well for another scientific worker among our ranks.

The June meeting was a repetition of the successful experiment of the April one. The subject introduced was "The Nature and Treatment of the so-called Rigg's Disease;" the line for discussion was suggested in a series of questions submitted by Mr. C. S. Tomes, who, unfortunately, was unable to be present. The meeting was also favored by a letter on the subject from Dr. Arkövy, of Buda Pest, and the discussion opened by a short paper from Mr. O. Coles The subject being extensive, and at present not very clearly defined, it could by no means be exhausted in the allotted time, and there was a generally expressed wish that it might be again introduced at some future time. I trust such may be the case, as the matter is a very important one, and likewise for the reason that at the meeting in question more than one disease or condition was evidently referred to. Attention having been so prominently drawn to the subject, it is to be hoped more definite knowledge will be attained regarding its true nature and cause.

During the month of May in last year a youth died from the effects of chloroform administered for the extraction of two or three teeth. The editor of the *British Medical Journal*, in commenting on the case, remarked: "Is it ever right to use chloroform for dental purposes? We wish the Odontological Society would pronounce an authoritative opinion on that subject: and we should hope that, if they were to do so, they would absolutely forbid it." As President of the Society referred to, I felt we could do no other than accept the suggested duty, provided our responsibility could be shared by the presence and opinion of those most eminent as anæsthetists in this city. The question was, as you will remember, fairly and deliberately discussed at our November meeting, and while it was considered unadvisable to lay down any hard-and-fast rule, the general tenor of those who discussed the point was to the effect that, while chloroform should only be employed in very exceptional cases in dental surgery, there were still a few such in which it was the most suitable anæsthetic.

The authoritative character of this meeting rendered its conclusions most important: while the assertion remained unchallenged, the position of any one who recommended chloroform for a dental operation was far from satisfactory, while now he may feel, under peculiar conditions, justified in so doing.

I think our time was well expended on that occasion in arriving at a conclusion upon that one question only. Other questions bearing on the same subject had been suggested, and would have been discussed had time permitted. They were, however, of minor importance, and were, moreover, some of them so thoroughly forensic that the Society could only have expressed a very qualified opinion upon them.

At our last, the December meeting, we were favored by a paper from Mr. C. Heath in regard to those rare but interesting cases of hypertrophy of the gums: the histological character of one case being given by Mr. C. S. Tomes, and which bore practically upon their successful treatment. The latter gentleman also again contributed a fourth communication, "On the Attachment of Teeth—Hinged Teeth." That our Society is most deeply indebted to this gentleman we shall all admit: his communications, while so eminently scientific in character, are yet produced with such admirable clearness and precision that subjects in most hands difficult and dry, become in his simple and interesting. That he should this year have received the highest scientific distinction our country can afford, has been a source of gratification, I am sure, to every member of this Society.

To-night's proceedings have not been without interest. We have been favored with a variety of short communications of much importance, and our best thanks are due to the contributors. The communication from that most industrious of workers, Mr. Fletcher, holds out great hopes and expectations. It is true, we have been somewhat disappointed in the results of former announcements; but I think, from private communications received from Mr. Fletcher, he is now on the right tack, and that, ere long, we may possess that great desideratum of our day, viz, a stopping as superior to gold as that was for some years regarded as superior to all other. In my opening address I made what I believed would be considered as very heterodox remarks, at least on the other side of the Atlantic—*i. e.*, should they travel so far—in regard to the precious metal. My surprise was, therefore, great when I read the severe condemnation of a high authority in that country. It, however, shows we are wanting something we do not yet possess, and it is to be hoped Mr. Fletcher, or some other worker, may produce the same.

Besides the papers and foregoing discussions, &c., the Society has been favored with many cases of interest, description of new instruments and appliances, material, &c., presented as casual communications, and which deserve much more than the mere notification of the fact, which time now only permits.

At the April meeting I had the pleasure of announcing that a committee had been appointed, supported by a grant from the Council, to enable it to obtain analyses and carry out experiments on new materials for filling teeth. It has made one report—at the June meeting—on Stayton's Amalgam (felt foil). The report simply contained an analysis of the compound. But I learn the committee has been actively at work, and will, ere long, be enabled to present an account of their experiments with a variety of compounds. I greatly trust this committee may be enabled to continue its work, although it is one which must trespass, in no small degree, upon the time of its members. I am sure the Society will grudge them no reasonable sums of money, even if large, to enable them to prosecute such work. The profession have at present to rely wholly on the assertions of the vendors of the materials in regard to their value, if they desire to employ them early; on the other hand, a cautious refusal to use them until after years of trial, may some day prove a great misfortune to the cautious and their patients. The experiments of a former committee, made on the zinc oxy-chlorides, though only chemical ones, were very encouraging, proving that which practically turned out correct, viz: that they could not be regarded as reliable and durable; and this as opposed to the views of some who from short experience formed a different view.

I believe the members will be pleased to learn that the Council has determined to supply them, from time to time, with portraits of their former Presidents, by the Woodbury, or some other similar process. I think this will be especially acceptable to country members, many of whom, from distance, etc., have little other benefit from the Society than the reflection that they are contributing to an excellent object.

This, gentlemen, is a short summary of the work of the Society during the past year, and it will, I trust, bear a favorable comparison with most of its predecessors. If we have had no great event to chronicle, we have happily had no great calamity to deplore. That the ever-busy hand of death has spared our ranks during the past year is a cause for thankfulness. Without our Society, one has been called away who at one time occupied no unimportant position in the profession. His practice was very large and his work of undoubted excellence. I refer to the late Mr. Lintott.

The great event of the year, however, has occurred without the Society. When I addressed you in February last, but eleven months ago, in alluding to the same, I said : "I can hardly venture to believe that so important a measure as that now before Parliament will, ere a year passes, become the law of the land;" yet such it is, and we now sit here for the first time members of a legally recognized profession. I believe a work of this character to be almost unprecedented in the annals of parliamentary history; and it tells of the indefatigable labor of the two individuals who really achieved it.

To ourselves, *i. e.*, as members of the Odontological Society, there may be apparently no actual gain (although to many the exemption from juries, &c., must be no little relief); indeed, some of us may feel a little discouraged at our registered associates; but in all such measures existing rights, even if such are little other than actual wrongs, must be respected. Let us not forget that progress of any kind, whether it be that of the individual, the nation, the community, or even of the species, is ever accompanied by self-sacrifice, a universal law prevailing from the highest to the lowest, and to which we have no right to expect exemption; rather let us content ourselves by reflecting that we have joined in a work deserving the gratitude of future generations.

Gentlemen, in vacating this chair, I thank you for overlooking my many short-comings, and for your kind support. The office falls into able and experienced hands, and I have the comfort of feeling that, whatever the Society may have suffered in the year 1878, it is sure to more than regain in the year 1879.

At the conclusion of the address, the scrutators reported that the list of officers proposed by the Council had been duly elected.

Mr. Woodhouse proposed a vote of thanks to Mr. Coleman for the very satisfactory and efficient manner in which he had performed the duties of President. The depreciatory remarks in which Mr. Coleman had indulged at the commencement of his address were certainly quite uncalled for. The Society was much indebted to him for his services in previous years, as well as in that just past, and they could not allow him to leave the chair without expressing their sense of the obligation.

Mr. Walker seconded the motion, and said that Mr. Coleman's name was almost as well known in the United States as in England.

The President, in returning thanks, said he had received more from the Society than he had been able to repay. He had been the first member formally admitted by the President after the first incorporation of the Society, and from that time until his health began to fail, he had never missed attendance at a meeting. The Society was his school in those days, and a very valuable school he found it.

As he had now ceased to be a member of the Council, he might be permitted to state, from personal knowledge, that its members fully deserved the thanks of the Society. They had been most regular and punctual in their attendance, and most zealous in their endeavors to promote the usefulness and prosperity of the Society.

Mr. Vasey proposed and the President seconded a vote of thanks to the Secretaries, Treasurers and other officers of the Society.

Mr. Oakley Coles, in the absence of the Treasurer, briefly returned thanks, and the meeting was adjourned.

THE REMEDIAL EFFECTS OF SEA AIR AND SEA-BATHING IN THE DISEASES OF CHILDREN.

BY JEROME WALKER, M. D.

"Marine medication," as Brochard calls the therapeutical application of sea air and sea-bathing, has not been considered in this country, even by physicians, as an ally of *much* importance in the treatment of the diseases and disorders of childhood until within the last eight years. Now, owing to the enthusiastic little books of Brochard* and Parsons, to the suggestive hints in our recent text-books on therapeutics, and to the many facilities for reaching the sea-shore within our reach, there is danger of abusing a valuable aid in the restoration of health.

To point out the exact value of "marine medication," as shown by the results obtained at the public sea-side homes, established for the debilitated children of our cities, is the object of this short paper.

The first sea-side home in this country was opened for the children of Philadelphia, at Atlantic City, N. J., in 1871. It is well arranged for quiet, isolation and executive work, consisting of a main building, sixteen cottages, a large pavilion for mothers and sick children during the day, and suitable out-buildings. For the last four Summers, 746 children have been cared for (the majority being under five years of age), and as many mothers as were necessary to care for the youngest children.

During the Summer of 1875, 129 children were cared for, the average stay being ten days. Fifty children were suffering from "debility;" 15 from diarrhea; the remainder from strumous disease of the bones, joints and mucous membranes, or were convalescents from fevers or operations. Of the 129 cases, 86 were discharged well, 40 improved, and 3 unimproved—none died.

In 1876, 206 children were cared for; 93 cases of "debility," 47 of diarrhea, 25 of joint diseases, and the remainder were cases of strumous disease, difficult dentition, or were convalescents. The stay of the cases of joint disease was prolonged to 6 or 12 weeks, while the average stay of the whole number of cases was 21 days. Of the 206 children cared for, 156 were discharged well, 45 improved, 2 were unimproved, and 3 died, one of tubercular meningitis, the other two of Summer diarrhea, within a few hours after admission.†

Dr. Wm. H. Bennett, the physician in charge of the Atlantic City House, writes‡ that, in his opinion, "some diseases are made worse by a short say at the sea-shore, others are uninfluenced, and others still are benefited. In the first class he places most of the diseases of the skin and the inflammatory diseases of the eye, except when of strumous origin, or after a prolonged stay at the sea-side.

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* Sea Air and Sea-Bathing, 1865.

† Annual Reports of the Atlantic City Home.

‡ Philadelphia *Medical and Surgical Reporter*, Feb. 16th, 1878, and Correspondence.

The second class, or that uninfluenced by sea air and bathing, includes cases of heart disease, Bright's disease, epilepsy and locomotorataxia; while the third embraces asthenia, convalescence from surgical operations, long sickness, and even from scarlatina, cases of chronic nasal and pharyngeal catarrh, consumption in its early stages, before breathing is impaired, joint diseases and chorea. The doctor believes that children suffering from debility and Summer diarrhea ought to have at least ten days or two weeks at the sea-side to derive permanent benefit, and for joint diseases several weeks. This is my experience also.

In July, 1875, the Sea-Shore Home for Boston was opened at Beverly, Mass. The building occupied is one formerly used as a boarding-house. In 1875, 133 children were cared for; over one-half were less than three years old, 64 were convalescents, the remainder were cases of cholera infantum or scrofulous disease. There were discharged well 93, relieved 25, not relieved 13, and 2 died. The average stay was 10½ days—the shortest one day, the longest 77 days.

In 1877, 79 children were received; 17 cases of cholera infantum, 31 of diarrhea, 9 of dysentery, 8 of debility. Typhoid fever broke out, owing to defective drainage, so the mortality was increased. Of 79 children, 53 were discharged well, 18 relieved, 1 not relieved, and 7 died (all under 2 years of age)—3 of cholera infantum, 2 of diarrhea, 1 of dysentery and 1 of typhoid fever. As predisposing causes of death, Dr. Ed. T. Williams, the physician in charge of the Beverly Home, claims that 3 of the children under one year of age were never nursed, while two more were prematurely weaned. The two in their second year were *over*-nursed. The doctor writes* : The average stay at our home is 9 days. "There is an almost invariable improvement in pretty much every class of cases except *lung troubles*. I never anticipate trouble with children, however sick, when nursing. All the deaths, so far, have been of children under two years of age, and among those not nursed or over-nursed." Dr. Ayer† has noticed what I have repeatedly observed, "that many severe cases of cholera infantum begin to improve immediately after their arrival at the sea-shore; that if no improvement is noticed by the end of second or third day, it is rare to occur at a later date."

In 1876 the West Side Relief Association, of New York City, established a home at Far Rockaway. The Resident Physician states that the Home receives about 100 children at one time; that the average stay is seven days; that the cases are mainly "debility" and diarrheal affections; that the majority of children improve rapidly, and that among the younger children those nursed do better than those not nursed. In 1876 the last of the four sea-side homes now in existence was opened at Coney Island by the Children's Aid Society of this city, for the debilitated children of Brooklyn. A building was erected on the pavilion plan, capable of accommodating 70 inmates. Last year a two-story extension was added, increasing the capacity from 70 to 180 inmates. This coming season it is the purpose of the generous donor of the buildings to erect, in addition, a suitable two-story building, of eight rooms, for the accommodation of the very sick children, which will every year increase in number, as physicians see good results. During the first year the Home had no physician's record. Last year (1877) the Home opened June 18th and closed September 15th, a period of thirteen weeks. On July 9th it became my duty to visit as the attending physcian. Before that date there was no medical record; consequently, what I may offer this evening cannot give an account of *all* the work accomplished, but is sufficient from which to draw useful deductions. During the thirteen weeks the Home received 565 mothers and 1,601 children, or 240 under one year of age, 663 over one year and under five years, and 698 over five years. Of the 565 women received, 39 accompanied children from various private institutions in this city. The children so received numbered 154. These women and children were, in the main, treated by the physicians attached to the respective institutions. These physicians expressed themselves as well pleased with the good results obtained.

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* Correspondence.

† Formerly Physician to Beverly Home.

Fully three-fourths of the children admitted under five years of age were convalescents, or were suffering from some form of gastric or intestinal trouble incident to a city residence and hot weather; and nearly all recovered after a week's stay, this being the average duration of stay. Certain cases were kept over Sunday, but, as a rule, it was thought best to have the Home without inmates for one day and a half each week, on sanitary grounds.

A record was deemed necessary only for those needing medicines and special diet; hence, but 141 children were placed on the sick list. The Summer's experience showed that sea air and proper sea-bathing, with good, substantial and well-cooked food, restored the majority of the asthenic children to health, and that these means, with a week's freedom from household cares and worries, toned up the nervously-exhausted woman, and enabled women to nurse well who before could do so but imperfectly. Of the 141 children, 46 recovered, 40 were somewhat improved, 38 greatly improved, 11 not improved, and six died, as will be seen by the following tabulated statement:

DISEASE	Number of Cases.	Duration before admission.	Ages of Children.	Cured.	Improved	Greatly Improved.	Not Improved.	Died.
1. Chronic diarrhea, with vomiting and wasting	37*	3 weeks to 3 mos.	8 mos. to 19 mos.	5	19	5	3	3
2. Chronic diarrhea, with wasting	16	1 to 7 mos.	5 mos. to 2 years.	6	6	3	......	1†
3. Prostration after severe illness; much wasting	20	indefinite	2 mos. to 6 years.	5	5	8	3‡	1
4. Recent diarrhea, with vomiting	4	3 days to 1 week.	3 mos. to 1 year.	2	1	1	......	....
5. Recent diarrhea	17	1 to 2 weeks.	3 mos. to 3 years.	3	5	6	3	....
6. Acute intestinal catarrh	2	1 day.	2½ and 3 years.	1	....	1‖	......	....
7. Dysentery	3	2 weeks to 3 mos.	....	....	2	......	.....	1§
8. Various digestive disorders, with slight wasting	9	1 week to 3 mos.	6 weeks. to 7 yrs.	5	2	1	1	....
9. Malarial debility	3	2 mos. to 6 mos.	3 yrs. to 13 years.	1	....	1	1¶	....
10. Skin diseases, eczema, erythema, uticaria, boils, scrofulous abscesses	10	....	....	3	....	7	......	....
11. Dentition, excessive appetite, bronchitis and nervous excitability	20	....	....	15	....	5	......	....
Total	141			46	40	38	11	6

* In all vomiting ceased by second day; one not improved, never will be, on account of incompetent mother. DEATHS—1st. One child went home July 14th, improved; had second attack, cholera infantum; returned August 8th; died August 10th. 2d. Came August 3d, in state of collapse; died August 4th.

† Had had convulsions before coming.

‡ One grew worse. Salt water bathing a great benefit in these cases.

‖ Severe case; died at home.

§ Improved, went home, relapsed, returned and died. During week from August 13th weather very damp, developing some cases; but all were cured.

¶ Disease developed after arrival.

Many very sick children began to improve within a few hours after arrival, some recovering ultimately; others had their lives prolonged beyond the time allotted to such cases in the city. This last result was especially marked in a child from the Sheltering Arms Nursery, suffering from gastro-enteritis, complicated with congestion of brain and lungs. The child lingered along for over a week, one day better, the next not, and finally died.

Dr. Bunker, the Physician to the Nursery, sent the following note :

"DEAR DOCTOR : You have done the very best possible for a case that was considered *hopeless* before going down."

It will be seen by preceding statements that a certain proportion of the sick were not benefited or were made worse. The explanation of the various results obtained will be found in the following summary :

The air at the sea coast—its value.

The tonic properties of sea air are due, 1st. To the saline particles found in the spray or "dust of the sea," and which are carried hither and thither by the winds and waves; and, 2d. To the freshness of the sea-breeze, which is at its best when blowing "from a good point, over a large extent of open sea, when it has not been confined by any obstacle or has not been mixed in its passage with any deleterious exhalations," or is not much dampened by rainfall. From the peculiar formation of the coast, Coney Island and Rockaway are more exposed to sudden damp winds than Atlantic City or Beverly, which have water in front only. Owing to these damp winds, weakly children may be suddenly prostrated with a diarrhea or bronchitis. Then, too, the dampened sand does not dry as quickly as at Atlantic City. For these reasons, an existing bronchitis or diarrhea may be aggravated at Coney Island, in spite of care, when it would not be at the former place. The insensible, as well as the sensible gases of putrefaction, are particularly poisonous to weakly children. The New York garbage boats, as they passed through the Narrows and beyond, sent landward an odor which more than once prostrated the sickly ones.

The blowing of steam whistles, the clangor of bells and the babel of sounds incident to crowded sea-side resorts are prejudicial to rest and recovery.

A land breeze, if a hot one, is much more debilitating than any similar one from the sea. It induces nervous exhaustion, vomiting and diarrhea. Seldom do we find ourselves at the sea-shore for more than an *hour or two* without an appreciable breeze. The nights are generally cool enough for sleep, while the cool salt winds through the day tone up the skin, and its ally, the mucous membranes, inducing a healthy appetite, good digestion, free circulation and strengthened nerve-power. Digging in the warm sand, running, playing, the sun-bath, together with suitable diet and sea-bathing, assist the atmosphere.

Sea-bathing—its value.

Sea-bathing owes its efficacy to the temperature of the water, to its chemical composition, its density, its motion and its absorption by the skin, to the invigorating properties of the air, to the excitement, and to the necessary muscular exercise The first effect of a sea-bath is to chill the surface of the body, to pucker the skin, to drive the blood inward; then comes the reaction, followed by depression or the "second shiver," which, if prolonged, may prove serious; consequently children should be removed from the water before this occurs, and thoroughly dried, or allowed first to run about in the sun for a few moments. The best and safest time for children to bathe is when the tide is at its full. Weakly children may be educated oftentimes to sea-bathing by beginning with sponge-baths of warmed salt water. Even babies under six months of age may be benefited by a dip or two in the sea. Daily bathing will answer for the majority of children; but there are children who cannot bear more than one or two baths per week. Frightened children are better out of the water than in. Sea-bathing, properly used, at proper times, increases the appetite, softens and invigorates the skin, increases the flow of blood, the number of respiratory movements and the action of the heart, encourages elimination, growth and development. When improperly used, too often, or for too long a time, in persons of thin skin or of great nervous susceptibility, it causes nervous prostration, diarrhea, dysentery, eczematous diseases of the skin, boils, earache, headache, vomiting, faintness, and in one case that I saw, intermittent fever.

Diseases and disorders relieved by marine medication.

There is no doubt but that chronic conditions are generally relieved sooner than acute ones; yet vomiting and diarrhea, the result of hot weather will almost invariably cease within 48 hours after the child reaches the sea-shore, if the fresh, but dry, sea-breezes prevail.

General debility, the various diathetic conditions, atonic dyspepsia, the indigestion of spoiled children, chorea, hysteria, atonic and malarial congestions of the abdominal viscera, nervous excitability, chronic catarrh and cough, incontinence of urine dependent upon nervous debility, stomatitis, difficult dentition, scrofulous affections of the joints, and impetigo, are much benefited, especially after a prolonged stay at the coast of several weeks. It is probable that some children relieved at sea-side homes return to the heat and unsanitary surroundings of cities only to die, while others have been tided over into the calm waters of health. It is certainly to be regretted that a more prolonged stay cannot be made in some cases—but the "greatest good to the largest number," is the prevaling sentiment among philanthropists.

Diseases and disorders not relieved.

Rheumatism of the muscular and fibrous tissues, heart disease, epilepsy, diseases of the spinal cord, or any affection which requires as necessities rest and freedom from noise.

Diseases and disorders made worse.

Consumption, when the breathing is impaired, diarrheal affections, when associated with passive congestion or with inflammation of the lungs or brain, meningeal troubles, most cases of eye affection, unless dependent on struma, when they are relieved, and skin eruptions, mainly of a neurotic character.

In addition to sea air, sea-bathing, exercise, good food and proper nursing, a motherly care is necessary, to raise children at the sea coast as well as inland. Allowing children to eat peanuts, candy and greasy cakes, to drink large quantities of water, to be thinly clad at inopportune times, causes much sickness; while diarrhea is produced in this way, it is equally true that children perfectly regular as to their evacuations at home become constipated on first going to the sea-shore, owing to checking of the perspiration, congestion of the liver and consequent diminished secretion; or diarrhea and dysentery are the results of a congested intestinal canal. Dr. Bennett writes that he has "found many persons suffering from piles who seldom or never suffered with them elsewhere."

The children in our large cities who most need a change of air are those under five years of age, those who are sick or debilitated, those from tenement houses and private and public institutions for children, those who have weakly mothers to care for them. These, it is hoped, the gentlemen of this Society will send to us during the Summer of 1878. With the advantage of one Summer's experience and improved quarters, it is believed that better results will yet be obtained than have hitherto been. The time should come when permanent "homes" will be established in the mountains and on the sea coast. In these will the best results be obtained.—*Proceedings of Med. Soc. of the County of Kings.*

OBITUARY—DR. P. H. AUSTEN.

At the Monthly Meeting of the American Academy of Dental Science, held in Boston, February 5th, 1879, the following resolutions were adopted :

Resolved, That the Academy have heard with deep sorrow of the death of one of its Honorary Members, Prof. P. H. Austen, of Baltimore, and in recognition of his character and ability, we desire to express our regret for his loss and our appreciation of his worth.

Resolved, That our Academy, and the Profession of Dentistry, have rarely been called upon to record the death of one whose loss will be more deeply lamented or more seriously felt.

Resolved, That in Dr. Austen's long connection with the Baltimore College of Dental Surgery, as one of its leading Professors, he ably and successfully filled a high place of activity and usefulness, and discharged the duties entrusted to him with high honor and rare ability ; and all the graduates of the Baltimore College who sat under his instructions, and the dental profession everywhere, will ever remember with gratitude the labors of Prof. Austen, his numerous and valuable contributions to the science and literature of his profession, his personal inculcations as a teacher, and the deep interest he always manifested in his work.

Resolved, That as a Christian gentleman, of learning and culture, he has left the testimony of a name and character that will endure so long as eminent services and faithfulness to duty shall be held as worthy of commemoration.

Resolved, That we tender our sincere and heartfelt sympathy to the family of the deceased in their heavy bereavement, and that a copy of these resolutions be presented to them and a copy be entered upon the records of the Academy and published in the dental journals.

ELISHA G. TUCKER, *President.*
JACOB L. WILLIAMS, *Vice-President.*
EDWARD N. HARRIS. *Cor'g Secretary.*

OBITUARY—DR. J. H. McQUILLEN.

We learn with sincere regret of the sudden death, from disease of the heart, of our excellent friend, Dr. J. H. McQUILLEN, than whom no member of the profession has been more conspicuous during a busy professional life, as both editor and instructor. We hope in a subsequent issue to give our readers an account of his life and labors—meantime we publish the subjoined resolutions.—ED.

At a special meeting of the Alumni Association of the Philadelphia Dental College, a committee was appointed on resolutions, and respectfully submit the following:

It is our painful duty to record the death of our teacher and fellow-member, Prof. J H. McQuillen.

Resolved, That in his death the Alumni Association of the Philadelphia Dental College has lost a friend who was ever ready to devote his time and talents to the best interests of our Alma Mater.

Resolved, That in his death the profession has lost an invaluable member and a most earnest worker in the cause of dental education. To his indomitable energy and perseverance we bear our testimony and mourn his departure.

Resolved, That a copy of these resolutions be forwarded to his bereaved family and to the dental journals for publication.

Committee.

Dr. A. Boice,	Dr. J. McManus.
Dr. A Lees,	Dr. L. A. Faught,
Dr. W. H. Fundenberg,	Dr. J. L. Eisenbrey.

ERRATUM.

Note 1st: In our February issue an article appeared which should have had these headings, viz.: "Sanitary Science,"—"Chas. A. Brackett, D. M. D.,"—"The Sanitarian." By an error of the proof-reader the article is headed "Sanitary Science" merely, and in the index is ascribed to Dr. C. A. Brackett as its author. As the terms used in reference to Dr. Brackett are not those which a modest man could well use concerning himself, the mistake is a rather awkward one. We make the above explanation in order to exonerate Dr. Brackett from the charge of having "blown his own horn," although that might easily be forgiven one who has accomplished as much as he has.—Ed.

NOTES.

Swallowing a Set of Teeth.

According to the report of a local Philadelphia paper, a man died here, on the 4th inst., under very singular circumstances. His name was Levi Wagonseller. He was thirty-eight years of age, and was employed in a cotton factory at Fairmount. One evening in December last, he entered a Chestnut st. restaurant to get supper. When about half through the meal he suddenly felt something sharp and pointed going down his throat, causing him intense pain. For a moment he thought he had swallowed a large and jagged piece of bone, but putting his hand to his mouth instinctively on feeling the pain, he found that his false teeth were missing, and he knew that it must have been they which had gone down his throat. The teeth were three in number. They were fastened to a silver plate, and had been in his mouth for many years. Recently the hooks holding them in place had worn loose, and the artificial teeth had annoyed him by falling from his mouth several times. Plate and all had gone down his throat, and he could feel them lodged against his breast. Alarmed and suffering intensely, Wagonseller went to his home, which was in a suburb of the city (Hestonville), in Paxson street, between Fifty-first and Fifty-second. He could eat no solid food, and for two days took nothing into his stomach. On the third day he managed to force down a little bread and milk. On this day the sufferer went to the University Hospital to see Dr. Agnew, who, after examining him, seemed to have little hope of saving his life.

Wagonseller then came to Philadelphia to stop at his sister's house to receive treatment from her physician, Dr. Stewart, of No. 1840 Green street.

Dr. Stewart was called upon to visit the patient on the fifth day after the occurrence. He advised him to take a swallow of gin as the readiest means of dislodging the teeth, which still remained in the throat. The patient followed his advice, and almost immediately felt the teeth going down. But this only led to a worse result. The teeth moved down and lodged about one inch and a half above the entrance to the stomach. Had they passed into the stomach, according to medical authority, the chief danger in the case would have been over. But lodging as they did the patient could swallow nothing, not even milk or water. It was absolutely impossible to get anything down his throat. Milk was recommended, but when it would be poured down, as soon as the glass would be removed from his lips, it would come back, exuding from ears, eyes, mouth and nostrils. The strangest of all was what followed. The man lived for seven weeks without swallowing a morsel of food or a drop of water. Even the juice of an orange he could not swallow. From a stout, hearty man, weighing probably 190 pounds, he dwindled away to a mere skeleton. His hands became horrible to look at by reason of their loss of flesh. Strangely enough, too, all this time, the man, who was perfectly conscious and rational, had no appetite, no craving for food. The smell of victuals, he said, made him sick. From the time he went to his sister's house, four days after the accdent, he had not stood on his feet, lying alternately on a bed and in an invalid's chair. This posture he kept at the recommendation of his physician, until from lack of food he became so weakened that there was no option in the matter, and he had to lie all the time. Operation with an instrument was suggested by his physician, but this his sister would not consent to, unless assurance could be given that it would result in saving his life. This, of course, the physician could not promise, and no such operation was tried.

After being for over seven weeks without food, Wagonseller died, death resulting from inanition, or, in other words, starvation. To the very last he had no appetite for food. The day before his death he began to get short of breath and told his relatives that he felt himself dying. Up to the last hour he retained his senses and talked freely about his case, instructing his relatives to have a post-mortem examination made upon his body. In accordance with his request the examination was made by Drs. Stewart and Agnew. The plate, with the teeth in it, was found about one inch and a half above the entrance of the stomach, the hooks firmly imbedded in the flesh. There were marks at certain intervals in the throat, showing the progress of the plate as it passed downward, the prints of the teeth being in several places plainly visible. Had the plate, which was about two inches long and an inch wide, passed into the stomach, in the opinion of the physicians it would have dissolved and the man's life been saved. As it was, the plate passed down the throat in a transverse form, and once lodged at the furthest point, displacement was impossible.

Commencement Exercises.

The thirty-ninth annual Commencement exercises of the Baltimore College of Dental Surgery were held on Thursday, March 6th, 1879, at 7:30 P. M., in the Academy of Music.

President of the Class—Samuel E. Jones.

Vice-President—Gordon White.

Secretary—Charles N. M. Latimer.

Treasurer—John C. Wilkerson.

Committee of Arrangements—Arthur M. Rice, William R. Laws, Richard H. Billingsley, Frank P. Bernard, Thomas S. Jordan.

The valedictory address was by Rev. Alex. W. Weddell, D. D., and the class address by Frank B. Perry, of graduating class.

LIST OF GRADUATES.

A. M. I. Hein, Germany, The Teeth; A. H. Grieffenhagen, Germany, Extraction of Teeth; Samuel Edward Jones, Texas, Dental Caries; Frank Pearce Bernard, Pennsylvania, Special Senses; William Rust Laws, Maryland, Irregularity of the Teeth; Juan Bautista Lombard, Cuba, Stomatitis; Edwardo Lombard, Cuba, Aneurisms of the Tongue; B. Jones Quattlebaum, South Carolina, Alveolar Abscess; William Roberts Renalds, Virginia, Dental Caries; James Armstead Colvin, Virginia, First Dentition; Laurence Stafford Wolfe, South Carolina, Stomatitis; Charles M. N. Latimer, District Columbia, The Teeth of Man; Andreas C. Ferrari, Russia, Treatment of Dental Pulp; J. Allen Patterson, South Carolina, Treatment of Dental Pulp; Gordon White, Tennessee, Neuralgia; Frank Brumit Perry, Virginia, Treatment of Dental Pulp; Arthur Monroe Rice, Connecticut, Treatment of Dental Pulp; John C. Wilkerson, Alabama, Dental Caries; Robert P. Fletcher, Virginia, Treatment of Dental Pulp; John Madison Phillips, North Carolina, Treatment of Dental Pulp; Richard Hance Billingsley, Maryland, Maxillary Sinus; Thomas Sadler Jordan, Alabama, Dental Hygiene; William M. Rawlinson, South Carolina, Filling Teeth; Thomas G. Morrow, Maryland, Circulation of Blood; Richard Grady, Maryland, Treatment of Pulp; John P. Coult, New Jersey, Treatment of Pulp; Charles Eckhardt, Louisiana, Odontalgia; William H. Weems, Texas, Treatment of Pulp; Francis S. Harris, North Carolina, The Care of Children's Teeth: Edwin D. Akers, Pennsylvauia, Inflammation of Gums; T. Disbrow Stone, New York, Caries; Elroy F. Cross, Massachusetts, Treatment of Pulp; Edmund C. Bryant, Maine, Treatment of Pulp; Edwin J. Parkison, Maryland, Salivary Calculus; Alfred F. King, New York, The Six-Year Molars; Hall Lewis, District Columbia, Treatment of Pulp; Samuel M. Roach, Georgia, Filling Teeth; Edward Flannigain, Maryland, Artistic Dentistry; Richard B. Winder, Jr., Maryland; John A. Millard, France; Henry Bentley, Connecticut.

Number of matriculates for session 1878–9, 82.

Number of graduates, 41.

The Maryland Dental College no longer exists, having united with the Baltimore College of Dental Surgery.

JOHNSTONS'

Dental Miscellany.

VOL. VI.——*April, 1879.*——NO. 64.

WHY DOES THE DEW FALL?

BY W. S. ELLIOTT, D. D. S., M. D.

Looking to the list of discoverers and writers whose labors have most securely fixed and most rapidly advanced the principles and laws of modern science, the student observes most conspicuous among them all such names as Faraday, Tyndall, Helmholtz, Mayer, Rankine, Kirchoff, Thomson, Seguin, Cook, Draper and others, equally well known, and eminent in the world of thought and inquiry.

These principles and laws are the enunciations of recent date, in eminent contrast to those of earlier experimenters who, but comparatively a short time since, sought, in the depths of their wisdom to establish the ultimate truth as evidenced in phenomenal presentment.

Whatsoever of possible error there may have been in the conclusions of former investigators the real truth stands to-day as it stood then, and will ever stand, paramount to all prejudice or fanciful idealization. The investigation and unfolding of the law—positive and unchangeable as it is—will ever bring us more closely to the goal of our yearnings ; though this goal shall always remain within the sphere of the unknown and the unknowable, and our highest satisfaction will obtain in the conviction of a nobler attainment in that which it becomes our province to investigate.

"Why does the dew fall?" may be a question not scientifically stated ; but it is one popularly asked and the one which we propose to answer.

Dr. Wells, an English physician, during the year 1818, made this subject one of deep study and one involving many laborious experiments. He had observed the phenomena with earnest inquiry as to the principles involved, and, after much thought and philosophizing, gave statement to a theory which has ever been received as the true one and as being in strict accordance with accepted law. This theory, however, was but little more than a generalization, and while it involved the whole philosophy, as now understood, it did not minutely state it. The modern doctrine of the correlation of forces sheds new light upon the conclusions of this distinguished scientist, and it is with this doctrine we propose to make further inquiry.

The Garden of Surry was the place chosen by Dr. Wells for his experiments. Let us, too, walk in imagination upon the greensward of his favorite resort and observe with him the phenomena which engaged his attention, and which so filled his mind with the spirit of earnest inquiry.

As we go forth, the morning sunbeams glint through the misty atmosphere and the purple and gold of the clouds in the East seem to vie with the sparkle of unnumbered jewels that have, during the hours of the night, been deposited upon the grass, the delicate spider's web—the silken strings of which have been spun from blade to blade—the garden fence and the flower stalk, which now bends very low with the weight of its crystal burden. The air is cool, the sky is clear and here and there is still visible a star which has outlived the night as if to be present at the opening of the "golden oriental gate," when

> "Phœbus, fresh as bridegroom to his mate,
> Comes dancing forth shaking his dewy hair"

As we linger, craving the while a satisfactory reconciliation, the glancing sunbeams creep across our garden walk ; the mists that had hidden the crest of yonder hill rise, and the long profile is brought plainly to view. The air grows warmer ; the lilly cups scatter their measure of nectar and the bended stalk now straightens in proper recognition of the supremacy of the god of day. As the heat increases the dews are dissipated, and so our sentimentality must give way to a consideration of the abstruse problems, the solutions of which shall afford answer to our query.

In contemplating the phenomena of nature, we have been led to the irresistible recognition of two elements which are as constant under all and every varying circumstance as existence itself. These pertain to matter and force: not only that these are in themselves persistent and indestructible, but that the various forms of matter and forms of force are respectively so correlated and conserved that no consideration of loss is entertained, even though the ordinary sense fails to account, in any given case, for apparent annihilation.

This statement is eminently an important one, for all of our conclusions in modern Physical Science are based on this assumption.

In treating the subject in hand, I must assure you of the absolute necessity of precision of language; we will, therefore, note the distinctive definition of such technical terms as, for instance, *power* and *force; molecule, particle* and *atom; caloric* and *heat; dynamic* and *static*, etc.

The word *power* is confessedly beyond our ability to define, except that we may say it is equivalent to First Cause, Supreme Intelligence, Divine Impulse, etc.

Force is that power made apparent in some of the various forms in which we recognize it: thus, we say, that light, heat, electricity, magnetism, chemical affinity, &c., are forms of force, and that these are presented *dynamically* or *statically*, *i. e.*, actively or passively. When I spring a bow, the force of the dynamically moving muscle of the arm has become resident in the bow in a static condition, and remains so until the the speeding arrow changes the statical force to a dynamical one. I know you will confront me with the assumption that the word *power* is in universal use to represent the capability of a machine, for instance, to accomplish work; but, upon close scrutiny, you will be assured that the power to which you refer is not inherent but transferred.

Molecule has a definite meaning to the physicist quite distinct from *particle* or *atom*. A molecule of water, for instance, is represented by the symbol H_2O—having three atoms. A *drop* of water may consist of hundreds of molecules and a molecule may consist of hundreds, perhaps thousands, of atoms. (According to Dr. Thudicum a molecule of hæmatocrystallin—one of the constituents of the blood—is represented by 1895 atoms.)

Heat is a form of force or mode of motion. It was formerly supposed that heat was something independent of the body which was heated, and that it entered into the body from without; that it was an entity—something tangible which had in itself physical properties, and that it was ponderable matter. Viewing it in this light the old philosophers essayed to give it a name; they therefore called it *Caloric*, and Webster confirms the appellation by defining it "the matter of heat." Let us investigate, after the manner of modern science, its true characteristics.

All substances in nature are molecular, and all matter is subject to the laws which are evidenced in the forms of force.

The first elimination of Power was motion. This became, subsequently, differentiated into the various modes of motion to which we have already referred; and inherent in this motion was force. Molecules then are endowed with motion, and whatever may be the kind, whether circular or in straight lines, we must presume that the primal tendency is uniform. Suppose it to be in straight lines. Where the molecules are massed, as in a piece of iron, we can conceive what difficulty there must be for them to maintain this uniformity, as they evidently must impinge one upon the other, and be constantly driven hither and thither throughout every portion of the mass, causing the greatest possible confusion. Now, since this is really true, let me ask your acceptation of the definition of heat,—and it must be very clear in your minds, else confusion worse confounded will befall you. *This moving and clashing of the molecules of the iron is the iron's specific heat.*

A question here arises: In consequence of such a degree of active internal force, why does not the body disperse itself?

We said that there were other forms of force besides heat, and you will remember that we made reference to chemical affinity as one of them—also magnetism and electricity. Chemical affinity, however, has but little to do with molecules, *per se.* It deals with atoms alone, which it binds together in many instances, with most prodigious force. In its active or dynamic phase, it, on the other hand, disintegrates molecules, the atoms of which recombine to form new bodies having new attributes and new capabilities. The force which seems most apparent in maintaining the integrity of the mass is that commonly designated Cohesion. This is the result, no doubt, of combined forces, but magnetism appears to be the more prominent one. This is a static force, and is difficult to demonstrate by any tangible method. If, however, you take two artificial magnets and join their opposite poles you will realize how strong is the attraction. Atoms and molecules are endowed with polarity: and though it is the electric current which establishes this property, it is the magnetic force which directs and holds according to its own specific capability; thus do the parts of a body become intimately associated and so strongly bound together, that the specific heat force is incapable of overcoming the bond.

Suppose we heat a rod of iron to redness and plunge it into water, the ebullition which follows demonstrates the force set free. Now what is this force? You cannot but at once realize that the only change in the iron was the increased motion of its molecules which gave vigorous impulse to the water as it came in contact with it. This you will perceive is opposed to cohesion, which binds the molecules together, and which is very apparent, for now how easily does the smith bend the mobile metal and sway it and ingeniously fashion it into a shoe for his neighbor's steed or an anchor for a ship.

Should we continue to elevate the temperature we may reach that degree when the cohesive attraction is so nearly overcome that the metal liquifies, tending toward a still further degree of expansion when it is transformed, by the force which is acting upon it, to a purely gaseous condition.

Here, let me assure you, that all substances are primarily gaseous, and that they become solid only as the molecules come within the sphere of mutual influence, when they embrace each other and become capable of identification in the more tangible form.

You have, doubtless, watched with intense interest the smith as he manipulates the sparkling, sputtering, scintilating rod, and you have seen the little particles of iron fly off as he lifted it from the coals. This is the result of intense molecular motion; these minute portions have overreached the limits assigned to them in the mass, and the separation is rendered complete.

From what has been learned, we are now enabled more fully to appreciate the definition of heat as given by another: "Heat is a mechanically repulsive force antagonistic to the attraction of cohesion or aggregation, and tending to move particles of all bodies or to separate them from each other."

We might offer many practical and pleasing experiments in proof of this law.

The Sun is considered to be the mediate source of all terrestial heat and all forms of energy. We have felt its benign influence; we have learned to recognize its agency in the phenomena surrounding us, and we appreciate its absolute importance in all the requirements and conditions of life.

In the garden of Surry we noticed how quickly and effectually the heating rays dispersed the dew, and how the mist lifted from the hillside; and now we can apply our philosophy with a fair understanding of the intricate process.

The little drops upon the grass are in themselves proofs of the law of cohesion. They became augmented in size during the night when this force was in the ascendancy, but now, under the influence of increased momentum, they expand and separate and disperse themselves until their diminutive size makes them no longer apparent. All the day long, from the moist earth and from the sea does this process of evaporation go on. The minute watery globules float upon the atmosphere and rise to a height measured by their impelling force and their specific gravity.

As the twilight of evening creeps on and the sun's rays are withheld a reversal of the process is evidenced ; the vaporous particles obey the law of aggregation and a gray mist settles down as a blanket over the green verdure, at such a zero of suspension as that the equilibrium of forces is again established. But we have not yet given our reason why.

It has been inferred that every material object has special physical properties which exist in its atomic and molecular structure : that according to the peculiar character of aggregation of its elements, so will its affections be known. This differentiation is noticed in its behavior under the influence of the forces which actuate it. If you submit a plate of zinc and a plate of copper to the direct rays of the sun, you will notice that the one is much less quickly affected than the other, showing a notable difference in their conductivity. Let us study this matter a little closer. If in a given time the molecules of the zinc have not attained a degree of rapidity equal to those of the copper, then we may ask, What has become of that measure of force which is unappropriated, and which you say is indestructible ? The answer is—the circumambient air has been agitated instead of the metal, and although the forcehas impinged upon the plate the air molecules being sufficiently more susceptible, have become heated instead.

If into a glass of water at the ordinary temperature we drop a lump of ice we will presently observe that the glass is bedewed with moisture. How shall we account for this phenomenon ? At first the forces which actuated the molecules of the glass, the water and the surrounding air, were in equilibrium, but the ice was less dynamically affected than either of these, and upon contact with the water the ice became at once bombarded by the impetuous water molecules, and increased momentum was given to the cold body. Here, it is perceived, is a transfer of force which was an evident tendency to equilibrium. Now, the balance is disturbed between the water and the glass ; the latter loses a measure of its force or heat, which is imparted to the water, and, as we say, becomes colder.

What further? The little globules of water which are floating in the air enter the contest; they, with their little but powerful molecular guns, shoot against the glass and spend their ammunition of molecular heat. Again the balance is disturbed between the constituent forces of the globules of water. Cohesive attraction, through the expenditure of heat, gains now the ascendency and asserts itself by dragging together the molecules until they are made visible in drops.

This was the experiment which incited the philosopher to systematic efforts in ascertaining the true causes for the deposition of dew. He had observed that the glass became colder than the surrounding atmosphere by the addition of ice, and he naturally made this inquiry: Are the leaves and the webs and other objects upon which there was the presence of dew also colder? He hied himself to his garden enclosure, and with his thermometer made full confirmation of the truth; but he must also seek a reason for this most extraordinary fact. He suspected that radiation was the cause, and his suspicions were fully confirmed by subsequent observations.

Radiation is common to all bodies. The heat emitted by the sun is received by the earth and distributed according to the receptivity of the object impinged upon, and the variability of constitution renders these objects good or indifferent conductors or radiators.

There is no difficulty in ascertaining by direct experimentation, what objects fall within either category. Stones, dense wood and charcoal are tolerably good conductors, but indifferent radiators. Wool, silk, feathers, cobweb and the leaves of plants, on the other hand, are poor conductors but good radiators. When the sun's rays are withdrawn radiation still goes on, and since there has been an unequal distribution of heat corresponding to the difference of receptivity of the heated body, the process will be prolonged until a due equilibrium is restored.

The force radiated from the leaf, web, sticks, &c., imparts its heating influence to the air immediately surrounding, which expands, becomes rarified, and rises by virtue of the pressure of the colder stratum above—not by conduction, but by convection. The colder air, in its turn, as it falls in contact with the leaf, receives also its equivalent of the radiating force, and it, too, ascends; thus, a continued circulation goes on until the temperature of the leaf is much below that of the surrounding medium.

The invisible watery vapor being suspended in the atmosphere by the heat which it had previously received, necessarily gives up its molecular energy to the colder stratum of air upon which it floats, and which is contiguous to the leaf; consequently the molecules are caused to aggregate themselves, whereby they become tangible to the sense.

Radiation must be free and unimpeded, and the play of the elements unchecked by any interference; therefore, when the radiating energy is well pronounced it will be under a clear sky, for a blanket of clouds, as a blanket of wool, will redeem the loss by counter-radiation, and the temperature of the object will not be sufficiently reduced to attain to the dew point This explains the fact that only on clear nights is the dew deposited.

Those objects upon which there is no evidence of precipitation, such as stones, hard and close-grained wood or metal, are positive in their relationship to the vapor Their molecular energy is so far enhanced as to dissipate the molecules of water instead of influencing them to aggregation; and much in the same manner, and virtually upon the same principle, does the wind disperse and drive hence all vapor which would otherwise be gathered upon the grass or flowers.

Ordinarily one can scarcely appreciate the eminent value of the lessons taught us in the application of these principles to the phenomena of every day life, and when our thoughts are turned to contemplate the law in the fullness of its manifestation, how vast is the consideration! and yet how limited, when we are assured that our own sun is but a drop in the ocean of worlds which constitute the universe, and that our earth receives but *one twenty-three hundred millionths* of the heat and light emitted by that luminary! Yet, through this comparative moiety of force is consummated the entire scheme of evolutionary process with which we are familiar.

The continual and persistent change, as from life to death and from death to life again, is but the direct influence of the sun; and all and every intermediate aspect of matter and force is the result of his powerful energy.

Volcanoes erupt, and, with tremendous force, scatter their debris over miles of territory, and upward to heights such as have never been reached by aspiring man; the tides ebb and flow, the winds and rains conspire in torrential fury; mountains are reared and are riven by the vast energy derived from the same source. Forests grow and decay, and their potentiality is buried with them in the interminable coal beds whence we derive our fuel. The rivers flow from inexhaustible fountains; the mineral, vegetable and animal kingdoms present a fulfillment of the plan of creation; but the sun again is the mediate source of all this energy.

We, as objects of consummated mortality, live and surrender our lives in obedience to the stated law. We are truly "children of the sun." We bask a while in his genial rays, then—die, in due submission to the will of that Power, the influx of which was made manifest in the beginning, when "the Spirit of God moved upon the face of the waters," and the solemn fiat went forth : "Let there be light."

FIRST DISTRICT DENTAL SOCIETY, FEBRUARY 4th, 1879.

INCIDENTS OF OFFICE PRACTICE.

Dr. Mills said : There was a call at my office, Saturday, in behalf of a patient who was suffering intensely with pain. On arrival I found a lady who had been confined to her bed for about five weeks with difficulties of a very exciting nature. She was about 28 years of age I should judge. It seems that after she had been confined to her bed, she had difficulty with one of her lower molar teeth. The first molar was quite extensively decayed, and she had pain in that from a nearly exposed pulp. A good many efforts had been made, in different ways, to relieve her, resulting in the death of the pulp. When I saw the tooth it was hot with inflammation. She could not touch it with her tongue or teeth, and could not tolerate my examination, because of pain in the mouth. The lady attendants appealed to me to extract it. I judged it best not to extract the tooth. I knew I might have difficulty in the case, and went back to my office and had my assistant bring an engine with a couple of sharp drills. I put the drill through the surface of the tooth and struck into the bad pulp, then made a gutta percha cap and put on the outside, and gave the patient thirty-seven drops of wine of opium. I sent down there this noon and found that within two hours after my departure she was relieved entirely, and had been free from pain to this time.

If it won't take too much time, I have another case here. Dr. Atkinson is very familiar with it and knows the points. It is a case that has engaged the attention of several dentists. It is a lower central incisor. I was first called to the patient some months ago, in regard to pain in the tooth, and requested to bring my forceps. I went to the house and found a gentleman, an invalid. My attention was directed to two lower central incisors. I noticed that the gentleman was in a peculiar condition, bodily, and I thought perhaps mentally. I did not exactly understand him from his peculiar manner of talking. I did not propose to go on hurriedly, so I questioned him. I learned that he had been very much injured by being in one of the caissons of the East River Bridge at the time they were building under ground, and had been subjected to a severe atmospheric pressure, and had been in a debilitated condition some five years, nearly six, and confined to his house over two years. I coincided with Dr. Atkinson's idea that it was a case of debility of the nerve current.

This man complained of pain in connection with these two teeth, and several months previous had the idea that there were deposits there. He called in dentists from New York, and they removed these deposits, which, according to their story, extended pretty low down. He however found no relief from the difficulty, and it grew worse. I was called in at this time. I found he did not have any relief. From his own story I could not satisfy myself that there was any difficulty in regard to the teeth. I found—not at all connected with them either—that he had difficulties that were localized in other directions—sometimes here [illustrating at the upper part of the head]. Then extreme pains here [illustrating by another part of the head]. He would lose the power of locomotion. He lost control of the motor nerves. These pains would flash sometimes here [illustrating], sometimes there [illustrating], sometimes up here [illustrating], on the top of his head. Still he got this crotchet in his head that there was difficulty about these teeth. I could not feel convinced that there was any trouble from deposits in the teeth. He questioned me about necrosis: I did not see anything that indicated necrosis. Whenever I went to see him he kept running upon that idea of necrosis, yet I saw nothing there to indicate it. To be on the safe side, however, I thought I would ask counsel. I called on Dr. Atkinson, and he went with me to see the patient, with his son Clinton. Dr. Atkinson decided that there was no indication of necrosis. I called upon the patient frequently; as he asked me to do so. Some weeks after he sent, very hurriedly, for me to bring my forceps. I went in the morning. He said: "Now, Doctor, I want the other tooth out;" but his wife said she was prejudiced against having any tooth out at all. I asked him if he had had any out. He said: "Yes, I have had one of them out," and handed me one. I had contended that it would be an unwise thing to take out one of those teeth, and insisted upon it. He said: "Well, I have got this one out." I said: "Are you any better?" He said: "No, I am worse, the pain is more troublesome than ever." I talked with him and saw the same old difficulties remaining, and the same crotchets. I took the tooth and looking at it I noticed it was absorbed slightly on the point, and a little rough. The tooth next to it is about as firm as the tooth adjoining, and the surroundings have all healed up nicely, and he feels, if the next tooth was out, his troubles would be over. He said that Dr. Hammond said that if this tooth was out his troubles would be ended. I don't know that Dr. Hammond said that, but, evidently, the tooth has been taken out, and the other tooth is paining him, and his crotchet is to pull the other tooth. Dr. Atkinson will, perhaps, pass his judgment; he sees the tooth, and sees the condition of the apex of it. Whether his judgment would be changed now or not, I cannot say.

Dr. Atkinson: Probably this is as good a time as any other to make one of my pet speeches to my pet brethren, not to go before they are sent for, and not to make up a conclusion till they have testimony that is conclusive. Why I say this, is, so many men with long titles to their names, giving great indication of diagnostic ability, go off half-cocked, with the mere glimmering of a supposition, passing it for knowledge and actual diagnostic ability. I want the dentists to withhold their judgment, and withhold it until it is justified. I did see this case and felt it keenly. I gave the idea of necrosis my best attention, and, as you have heard, decided that there was no evidence. I gave my opinion, which was an opinion entitled to the term "Knowledge," or, at all events, "belief," which is the next stage of mental activity to knowledge, that the difficulty was nervous—was a disturbance of the nerve circulation,—and to note that I have for the first time had an opportunity to see what the reversed action of the nerve currents is capable of doing by disintegrating the substance we call cementum, at the end of the root of the tooth and taking it away in an adult.

This case is only instructive to us in the line that I have indicated; just to be square and honest, and go as far as we may go safely, and to have that brilliancy of intelligence and honesty to say we hold these things under judgment until they are declared more clearly.

This person, as has been said, was submitted to a pressure of several atmospheres during the building of the East River Bridge. He is a very finely organized individual and has a disease that has not been recognized except by a very few pathologists. I have called it the big headed, overweening confidence in the individual who has determined that what his mind indicated, was absolute. That is the kind of men that usually get positions as leaders in the world. He had a position as a leader and pushed himself through the exercise of his ambition, into conditions that he was advised by men of wisdom to avoid, and he is suffering for his temerity as I believe, simply because he overtaxed a well endowed system, and has broken down the tonicity of the food element in the nervous tissue, and in the embryonal tissues in general, and he is in an embryonal condition. He is supple as an infant, as tender as jelly, and if the other tooth were extracted, and we found that it was in the same condition as this, we still would not be instructed without we go further and extract some other tooth; and then how much more would we have to learn? We would have progressed only a few steps and obtained nothing conclusive, and I only hope this will help us to come together and present these cases as they appear to us, and leave them without decision unless we are entitled to a decision.

The Chairman then announced the subject for the evening discussion: "The treatment of Exposed Pulps," calling upon Dr. J. S. Latimer, to introduce the subject.

Dr. J. S. LATIMER: Mr. President and gentlemen: The doctor sets me at my old work of saying something to set the ball rolling. I have nothing new to offer on the subject of exposed pulps. I do treat them very much as I used to. I have no improvements that I know of: nothing better than what has been said over and over again. The treatment is precisely the same as that which has been advertised by all of us. I think everbody has tried simple dressing with carbolic acid; cleansing the cavity as well as may be on exposing the pulp; removing all the affected dentine when exposed; when not exposed I do not remove it, but dry thoroughly. I wish to say in reference to drying the cavity, I find absolute alcohol a convenience; that combines with the water, and then being mopped out and an additional portion of alcohol added and again mopped out, and then absorbing paper employed, and then the air pipe, and then carbolic acid, you get the parts about as dry as you are likely to in that time. The dentine then will absorb the carbolic acid. I do not understand how anyone can believe that carbolic acid kills the pulp, since we find it actually does not. It ought to, but it actually does not.

I have tried it over and over again. I have observed for a number of years and I have not found, so far as I have observed, that it does devitalize the pulps. I frequently introduce a little shred or shaving of gutta percha between the pulps, or rather the thin dentine, covering the pulp and the filling material; and where gold is to be put over it, I cover the gutta percha itself with a concave cap, generally of platinum. If there is an actual exposure of any dentine, I should use some powdered material. It would not make so much difference whether chalk or oxide of zinc; but that is always convenient, so I generally use that with carbolic acid and a concave cap, generally of platinum. I do not cap pulps that are in a painful state; I do not think it best to do it. I have treated, and restored to life, pulps, after a considerable time, and they are living yet, though done five, or six, or seven years ago,—but, as a rule, it does not pay; it is not best.

I wish to say in reference to the matter of devitalizing pulps. When not able to take the dead pulps out, or when they are found dead, as regards the difficulty of cleansing out the canals and of getting in the filling material, alcohol again comes into play, aiding us to remove the water or any pus or other substance that may be there, and also aids us in getting in some varnish (which was a suggestion of Dr. Chase, of St. Louis). Varnish will go in very often, and it is a good deal better than not to put anything in. So far, it has answered very well, as I have tried it, using it for a year, getting the canal thoroughly dried first. If there is any moisture there, of course, varnish will not go; immediately there is a precipitation of gum from this acoholic solution. I don't know that I can offer you anything more.

Dr. Atkinson: My only regret is that the brethren will not put in practice that which has been published. They are not in earnest enough, nor care enough about it to know for themselves what remedies do act favorably and what do not. That is the burden of my anguish. It is not that there is anything specially new in the method of treatment that has not been published and reiterated by earnest souls for years for the benefit of those who listen and go away, like the man beholding his natural face in a glass, and straightway forget what manner of men they were, and get into the old wretched humdrum, than which there is no wickeder thing known to intelligent dentists.

Now, what should we do in treating exposed pulps? Try to get them back to life, said one here. Now we have heard our brother, who always leads us directly to scientific illumination, as to the method of treatment. We may employ a number of remedies. We might use other substances that had special affinity for water. I will mention water and pure glycerine. So far as drying is concerned, the water is detrimental only because it contains germs that hold within them the power of disintegrating the tissues in the neighborhood, hence, I endorse all that has been said by our beloved brother.

Now, the next question is, what shall we do for the comfort of the patient and for protection from the disintegration that is sure to follow where we have failed to disinfect the locality?

Another speaker has told us that wine of opium is the thing to give, and, in his modesty, says that he administered thirty-seven drops: if he had given a hundred drops it would have suited me better. And the object is what? To quiet the neural-sea. Just control your patient: that is, if you may. Give him, hypodermically, five to twenty drops of Magendie's solution of morphine: thus in thirty minutes I have seen the worst cases relieved. There are many neural remedies that might be administered, but there are very few that will be so generally acceptable as wine of opium. It is a preparation that does not constipate: it does not interfere with the peristaltic movement of the intestines, which it is so necessary to keep in activity when inflammation is in the system. Then, too, in the case mentioned, the lady had already been disintegrated almost to the point of dissolution and distraction—I almost got crazy just in sympathy with the poor soul—and her ghost was just ready to kite out of its habitation. When she was in that condition, what did she need? She needed the soothing presence of some wise counsellor to administer the remedies best adapted to her condition. In a case of that kind let some one who is not illuminated follow a simple prescription, and give her a full dose of the wine of opium. I am so full of this question and this subject, and of reminiscences of past experience in days when I knew less about it than I do now, and when I was reaching with all the anxiety of an earnest soul for means to assist and relieve those that were supplicating my interference in their behalf, that I could talk to you long, directly to the subject, and directly to the pathological action that is but the reversal of physiological action, which can never be understood until you understand the relations of the histology of the system. Then bear with me when I tell you, STUDY HISTOLOGY; to know how the tissues are converted into organs: to understand the conversion of food into pabulum, and organs collated into systems that we call human bodies. Now my mind refers back to the history of the yearnings of my soul in inquiring of those to whom we were entitled to go for assistance—I mean the practising physicians in general practice—to help in those cases. They have been maladministrators of intelligence to us in almost every instance. Therefore, accept my earnestness and intelligence and honesty, when I urge upon you to study histology; better in classes than in any other way, for that will enable you to understand the subject before you; but if you cannot go to class, get a microscope and get a few specimens and study them until you get some little comprehension, and you will get so in love with it that you will go to class, but for God's sake don't read any of the old books.

Dr. CLOWES: I want to get back to the subject of the teeth again. This case of inflammation and suppuration?

Dr. MILLS: It had been filled, and the pulp had died.

Dr. CLOWES: And when you drilled into it it bled, did it?

Dr. MILLS: No; it did not bleed.

Dr. CLOWES: There is no mistake but what that was a tooth as near ulceration as could be. It was incipient at least, and the drilling into that tooth was the proper thing to do. If there had been pus in there, the discharge of that pus would have produced relief itself; if there had been simple inflammation and bleeding, the bleeding would have relieved it. That was a very sensible thing to do, and very likely brought relief. The taking of a number of drops of wine of opium was an unnecessary thing to do. Any extract of opium might soothe the nerves, but the mere opening of that tooth and giving vent to the gases or blood, or whatever was in there so long, was the thing to do, and that would have produced relief itself. Many and many a time I have treated teeth that way.—

A VOICE: Was it painful?

Dr CLOWES, continuing: That was a case of incipient ulceration, at least, it might have been real ulceration. All it wanted was to be opened, and that itself brought relief. The wine of opium probably brought it sooner, but it would have come without that.

Dr. W. H. DWINELLE: There is an aphorism in the profession that we learn as much—perhaps more—from our failures as we do from our successes. I am about to relate a case, not exactly a failure, but such a case that I tremble somewhat even now when I think of it. I would like to say that I believe I am on record as an advocate for saving the living pulp of the tooth, when exposed or otherwise, perhaps as far back as almost any one, and it is a matter of satisfaction to me to-night and in all of the past, that a principle that had so few advocates as far back as 1845 and 1846, is advocated perhaps by almost every interested member of our profession at this time. But to my case.

A few days ago I had occasion to undertake to save the superior left wisdom tooth. It was very much decayed; it was a mere shell, and yet I desired to save it. I excavated it out with great care, and just as I was about to conclude my operation for the moment, I found a little decay in a portion of the tooth quite remote, apparently, from the nerve, in the front cavity; in fact, it was situated up in a corner of the tooth, near the grinding surface. I discovered a little brown decay there, and I said to my patient, "Permit me to remove this little portion of decay; it won't hurt you at all;" and, believing in me, as he did, he was very quiet for the moment—more than usually so, being an unusually nervous patient. As I removed this little portion I exposed the nerve He jumped almost out of my chair. I never told a falsehood under such aggravating circumstances, and was detected so suddenly and so immediately, before in my life. It required a good deal of persuasion to induce him to take a seat in my chair. You will readily admit with me that he had good reason for losing all confidence in me. It was one of those cases where the pulp—which, as we know, corresponds generally, in form, to the shape of the tooth—had projected itself comparatively to the surface—very near the surface. After using a good deal of persuasion with my patient who exhibited great incredulity, I induced him to take the chair again. I let it be for a short time, and then I treated it with alcohol, wiped it out several times, applied carbolic acid, and then I concluded, inasmuch as he had justly lost confidence in me, that unless I operated all that I could at that particular time, I might not get an opportunity to do so again very soon, so I conceived the idea of capping it. I conceived the idea that I would simply cap it, putting in a small portion of oxide of zinc just sufficient to cap it and produce as little irritation as possible, and then seal it up; but, as I applied the chloride of zinc, I had some difficulty in applying it, the patient being exceedingly irritative and nervous. I almost apprehended I would fail. Finally, I thought I would fill it up entire and take the chances. After I had filled it up with so much of this irritating material, this being a large wisdom tooth and a mere shell—an unusually large tooth—the irritation was excessive. I would not dare, under pain of losing my prospect of heaven, repeat the explicatives that issued from my patient's mouth. They were the most extravagant and voluminous that I had ever heard. I had great difficulty in approaching him ; in fact I had some apprehension that he might approach me. But, however, I succeeded in quieting him down, but not the pain. The pain was most intense, as you might expect under the circumstances. I applied one remedy after another. I went through the whole catalogue of our pharmacopœia, as we understand it, but I finally produced relief in this manner: I applied aconite to the side of the tooth and gums and around it. I used Fleming's solution; dropping a few drops on a pad of cotton, I applied it on the outside, protecting it with paper, so that it would not touch the cheek any more than necessary. Of course, you recognize this as dangerous. Occasionally he asked me if the aconite was not very much like paregoric, and I let him remain under the delusion. He asked me if he could not swallow it. I quietly told him he might as well *not* swallow it. Having a glass of tepid water in my hands, inducing him to rinse his mouth from time to time, I went on with this dangerous treatment until I succeeded in subsiding the pain entirely. I was some time about it. After I was fairly out of the woods in the matter, I then gave him 15 drops of elixir of opium, and went home with him and remained with him until evening was past, and was gratified the next morning to find that there was no pain whatever. I have examined the tooth since, and I am perfectly satisfied that the pulp is alive; and I have no doubt, from experience in the past, but what I succeeded in saving the tooth entirely.

Dr. CLOWES: This is a most extraordinary confession, but still that is good for the soul. Now, only think of it. That is just such an experience as I had when I went to the dentist's last. When I went there that tooth was not aching at all, and that dentist brought his whole pharmacopœia, first one thing, then another. He never made a confession, that man didn't. Now, just look at that exposed nerve. If the doctor had just mixed osteoplastic with a little creosote—a third perhaps of creosote and two-thirds osteoplastic—the patient would have had no pain and he would have been sure of success. But only think what followed his getting up a row there, applying one thing after another. Now in regard to the matter of capping nerves in a case like that. It is very simple. You can do it with the greatest success. Put in a little creosote with the chloride of zinc.

Dr. DWINELLE: I have done it a thousand times.

Dr. CLOWES: I wonder you did not do it then.

Dr. DWINELLE: So do I; that is the reason I made my confession.

A VOICE: In the next thousand times carbolic acid will do as well as your creosote.

Dr. CLOWES: Now I am going to tell you about a case I had lately.

It was a molar on the right side lower jaw. It was a shell: the top was all gone, but there was a thin shell. Now, I wanted not only to save that shell, but I wanted to build up a tooth on that to meet a molar on the upper jaw. The nerve was almost bare: so near bare that the slightest touch would give him pain. Well, I said, to be certain to make a sure thing of this, the better way, in my opinion, is to put in some arsenic in that and kill it. This was a gentleman living in St. Petersburg, a long way off, and I ought to have done the very best thing for him, because if any accident happened, he couldn't run to me to get relief. But, recollecting what has been said about killing the nerve, I said, "I won't kill that nerve; I can just as well cap it and save it sound." So I did cap it and built it up: but that was only second best. What did that man want? He wanted a good, permanent masticator; and how is the best way to get that? Here was a tooth with a shallow outside. Now I filled in and built up, but that shell is liable to break. In other words, it was like putting a horse into a yard where there is but a slight fence. That horse will go against the fence and push it down. It would have been much more sensible, instead of putting him in there with only that slight fence, to put down a good hitch-post in that yard and hitch him. Then we have got the fence, and we have got something to fasten to, and he can't get away. I ought to have killed that nerve and put down two platinum screws in there, and then built up the crown. Now, I have simply got a slight fence, and some day the horse will get over. Under similar circumstances, let me advise you to kill the nerve and get the very best hold there, and make a permanent thing for life for that man—for your patient. You have your hitch-post and you still have your slight fence around it.

By Dr. DWINELLE—*Question:* Do you interpose anything between your oxychloride of zinc and the pulp?

Answer: I do not; my carbolic acid answers as an escharotic.

Dr. BROWN: I have got a little girl here I have been showing some of the dentists, who has in her mouth a principle of capping I have practiced upwards of seven years. I think I spoke once before on the subject. I use little discs of ivory, ranging in size from the head of a pin to perhaps the size of a split pea. These little discs are convex. As she goes around you can examine this case of a temporary molar. The pulp was actually exposed, as large an exposure as the head of a large pin. I capped it with ivory, filling in with oxychloride of zinc, about eight months ago. The minute the ivory was put there the pain ceased. It had been annoying her several days, and was relieved from the time of the operation. Several years ago a gentleman of about forty-five came to see me about his teeth. I found the left lower first bicuspid with the pulp exposed. I could see it plainly; it bled some. As he was evidently a healthy patient, I looked at all the materials we used for capping. It was a splendid set of teeth in a rich man's mouth. Necessity drove me to think of a little piece of ivory. I guess I had heard of it before, although I had never used it I told this gentleman of all the different materials in use, and told him I had not much success, in fact, very little with any of them. I asked what he thought of a piece of ivory. Ivory was gone from there, I said, let us put it back. I filed it out of the healthy root of a live tooth that was extracted, and placed it over the pulp. As soon as the ivory was placed over the tooth, the tooth having ached two or three days previously, there was no pain. I dressed it with some little weak solutions; we all have plenty of them, more than we need, most of us. It being on the lower jaw the cap would not stay there, and I thought of a little rosin and wax. I could not see it there, but could feel it, and I went ahead in that way and packed up the entire tooth. As soon as the ivory cap was placed there, there was no more pain while operating; no more pain a week after, and when I saw him last year the tooth was as beautiful and white as any tooth in his head. I have been capping a great many nerves and keeping statistics. I think it may not be better than any other substance, but to me it is handier, and if there is such a thing as compatibility and incompatibility, I do not know of anything nearer or of its kind that will come up as close and not too close to the pulp. I do it every week, but I have lost several cases. All these cases I have lost prove the rule to be good. In every case I have kept statistics of the patient, the kind of decay it was, and all about it, and in all these cases where the pulps have died, there have, to my knowledge, only three or four that have come back. All such cases, as I see them now, I would not try to save again, I would go right back to where Dr. Clowes stands and put in the arsenic.

The CHAIRMAN: Will any other gentleman speak of his practice with regard to capping the pulps of children's teeth.

Dr. ATKINSON: I will speak a little on that. If I emphasize the preservation of adult teeth I would intensify the emphasis in regard to children's teeth, for the very reason that the process of absorption of the roots, the solution and absorption of the roots, is wasted the very moment the pulp that is converted into the "carneous body" that is said to contain the "dentinoclasts" or those "giant cells," so-called, that break down and dissolve the roots of the temporary teeth, while the permanent set are rising by the evolutionary process into their places. By all means —and I doubly intensify the emphasis, save the pulps of the teeth of children.

Dr. W. T. La Roche: I am saving exposed nerves with gutta percha, soft gutta percha, and tin over it, and I have been enabled to save more exposed nerves in that way than in any I have ever tried. I think I have tried almost everything down to the enamel of a tooth filed down or ground down. I have had some considerable experience for four or five years in capping nerves, and really exposed nerves, and I can say I have made no failures where I was sure the nerve was not inflamed or diseased before I commenced. I have some cases I feel very proud of. I hope the gentlemen will try the two materials in connection, the gutta percha first and tin over it, and you will be surprised, I think, at the success.

A Voice: How do you apply it?

Dr. W. T. La Roche: It wants fine manipulation; the instrument must be just right. I take a very small piece of gutta percha, which makes a very thin film, and I have a peculiar gutta percha for that; you cannot do it with hard gutta percha. I take it up with a sharp-pointed instrument. If you take it up in that way you can take up a small portion and lay it against the side of the cavity after it is dry and draw it over with another instrument, and do it very nicely and not impinge upon the nerve. Before drying a nerve that is exposed I touch it with creosote and oil of cloves, and if there is bleeding I first touch it with creosote alone, and afterwards with a little oil of cloves. But if I should produce any pain in laying my piece of gutta percha, I should at once take it out and go over it again.

A Voice: Will the doctor be kind enough to tell us what advantage he supposes results from the use of tin?

Dr. La Roche: Yes, sir. Tin is a very low conductor, and gutta percha also; and when you have those two materials placed over a tooth you can fasten your gold at the sides, and it is not necessary to pack down on the tin, you can get your filling around, if you know how, and fill your tooth with gold. The tin being a very low conductor, would be just the thing to use. I have taken out fillings to look at them after being done two years, and have been satisfied not to remove my gutta percha or tin and fill it over again. I do not make this statement without knowing what I have been doing. I think gentlemen would be satisfied to try that mode of operation.

A VOICE: Did you ever take the whole out and see that the nerve had not been covered with new deposit?

A VOICE: I had a gentleman tell me he had one covered over five years, and found the tooth was just about in the condition he found it when he put the filling in; but he used only gutta percha at that time, if I understood him.

Dr. ATKINSON: He that asserts that an exposed pulp never is healed, I will invite him to come to my house at his convenience, and I will exhibit to him a tooth and submit to his judgment whether it is living or not. Some thirty-five years ago, in excavating for a filling, I cut off the upper cornua of the left superior first bicuspid pulp, and it bled, and I capped it—I was then using gold for capping—and some years afterward I did not like the looks of the filling, and I took it out to refill, having forgotten the condition in which it was, until in the removal of it the piece of plate fell into my hand. Then I had an opportunity to examine the exposed point, and so perfect was the secondary production of dentine that I could see no lining between the secondary and primary. That is an isolated case I have repeatedly spoken of. I have many cases like it.

Dr. PERRY: In the matter of filling larger cavities, no one has a right to put in metallic filling near any pulp. It is not to be thought of for an instant. There are some things to be taken into account before acting at all. First, the age of the patient; next, the size of the exposure. For a young patient, I should do all I could to save even largely exposed pulps; for some old fellows, I might save them or I might not. If the person is forty years of age, then he has but forty more to live, and that tooth is not to last so long, and I don't think there is much chance of the loss of such a tooth, provided, of course, we are good operators. As to Dr. La Roche's method, it seems to me it is not quite founded on correct principles. I know from my own experience that gutta percha in any form has never proved satisfactory. It seems to me that we must disinfect the part. That is not done with gutta percha; it is done with creosote and oxychloride of zinc. Again, I am glad to say that I do not hesitate to destroy exposed pulps, almost the whole profession to the contrary notwithstanding; because, again, I have to depend upon my own experience. It is a bold statement to make, and there is danger of misunderstandings. I never, under any circumstances, and have not for years, filled permanently any tooth the pulp of which I have capped at the same sitting. I have waited to see what the result would be. It seems to me we cannot be too cautious. If the filling has been preserved, if I find that the breach has been closed, I know then that I have a saved tooth. If I find it has not been, as will many times be the case, I can put it back in the same place and no harm. Certainly not in my own mouth, even under the finest hand, should I care to have the pulp capped complete and a filling put in. If the opening is very small, and there seems to be a prospect of closing the breach, it might do: but if the exposure is quite large and there seems to be a shrinkage up just at the point, and if I find the pulp in a sluggish state but still alive, with such pulps I don't like to take risks. I had rather have them filled with some filling I can put in easily, and so, if trouble comes, I have a remedy close at hand; but I don't like to take risks.

Dr. J. S. LATIMER : I have been practising several years and I have not heard mentioned this plan, although it has been read of and talked of a good many times : simply making a little cap, either gold or platinum, using the reverse end of the excavator and stamping out little discs, making a concave surface ; fill it with gutta percha softened with chloroform—it is not my idea—and on the reverse, sticking a little wax and resin, so as to make an adhesive surface, by which I can pick up the little disc when I am ready for it. I touch my instrument on that adhesive substance, and after touching the exposed pulp with creosote or carbolic acid, I carry the little cap to place, and then a little lateral motion, with no weight, no pressure, except the weight of the article, will just settle it to place. The chloroform will evaporate very soon, and the soft gutta percha will ooze out if there is any excess. The wax and resin is removed : that is merely for convenience for putting it in place ; I can handle it more delicately, I imagine, just touching that adhesive surface and putting it in place. Those manipulations require very delicate management and maneuvering—no pressure.

The chloroform in the gutta percha tends to allay pain. With that plan I have been very successful indeed, and especially successful with children's teeth.

Dr. BROCKWAY : We have had described, to-night, a number of methods of capping and saving exposed pulps. They are all good but it is possible that some may be better than others.

I think experience has shown that healthy pulps, under favorable conditions can be saved with any one of the methods which have been described here to-night : but in my judgment it is not advisable to attempt the salvation of pulps in every instance. I firmly believe and practice in the manner described by Dr. Perry. In the mouth of a young person I should make efforts to save the pulp alive that I should consider unnecessary in the mouth of an old or middle-aged person. The pulp is a useful part of a tooth, but its use diminishes with increasing age, and experience has shown that it is not essential to the comfort and salvation of teeth. I have in my own mouth not less than four pulpless teeth. I know that the pulp of two of them, upper bicuspids, were removed by Dr. Westcott as long ago as twenty-two years. Those teeth have never given me any uneasiness; they are to all intents and purposes as sound, and as likely to remain sound, as any teeth I have in my mouth. My experience is not single. We have filled teeth from which the pulps have been removed for years, fifteen, twenty, thirty and forty years; so that in a case where there is difficulty of saving the pulp, and the chances of its ultimate salvation unlikely, I hold it is the proper thing to apply the arsenic. I quite agree with Dr. Clowes, in his judgment as to the case which he related. I think he was unwise in his treatment of the tooth. He should have devitalized that pulp and made a certain thing of it.

There is a little article that I have not heard alluded to, to-night, that is useful in the treatment of exposed pulps, and that is Canada balsam and chloroform. The idea, I think, originated with Dr. Frye of Brooklyn. It is extremely useful. I have capped many pulps with it, varnishing it over the exposed pulps, and then filling with oxychloride of zinc, or with gutta percha, and have had as good success as perhaps in any other way. It occurred to me when Dr. Brown was relating the difficulty he had in securing his cap in place, that would have been just the thing he needed.

TRANSACTIONS OF THE ODONTOLOGICAL SOCIETY OF GREAT BRITAIN.

Ordinary Monthly Meeting, February 3d, 1879.

Edwin Saunders, Esq., President, in the Chair.

The Minutes of the previous meeting were read and confirmed.

The President announced that Mr. W. H. Woodhouse had resigned the seat in the Council, to which he had been elected at the last meeting, in order that the Society might still have the benefit of the experience and sound judgment of Mr. Alfred Woodhouse, who had last year filled the office of Senior Vice-President.

Mr. Robert Stratton Coles, 3 Prince's Square, Plymouth, L.D.S., R.C.S., Ireland, was proposed for election.

The following gentlemen were then separately ballotted for and duly elected members of the Society :

W. H. Margetson, Dewsbury.
G. H. Crother, Wakefield.
Joseph J. H. Sanders, Bangor,
Thomas Balcomb, St. Helens, Jersey.
Wilson Hogue, Bournemouth.
Herbert Woodruff, Leamington.
Ewen Tod, Old Steine, Brighton.
A. S. Underwood, Bedford Square.
E. P. May, Euston Square.

Mr. Henry Moon showed models of the mouth of a girl thirteen years of age, who had curiously-pointed temporary teeth. "Some of those present would remember that two years ago he had brought before the Society some cases of children whose teeth were of a conical form, but were in conformation quite unlike the peg-shaped teeth characteristic of inherited syphilis, and were, as far as at present appeared, only to be regarded as one evidence of the weak development of the dermal appendages generally. He had since met with two or three very slightly-marked cases of the same kind, and recently Mr. Jonathan Hutchinson had kindly given him the opportunity of seeing the patient whose conical sharp-pointed temporary incisors and canines were shown somewhat worn down in the models passed round. The intelligent mother of this child stated that the only tooth which had been changed was the first temporary molar ; the eruption of the permanent incisors had, therefore, been greatly retarded. With regard to the retarded eruption of upper front teeth, he should like to know if others had noticed that the failure of the upper permanent front teeth to erupt had been preceded (in such cases as they had seen) by an edge bite of the temporary teeth. He had seen several cases in which the two things went together, and was inclined to think that there was some connection between them. Might it not be that the straight downward pressure of a temporary tooth into its socket tended to retard the eruptive process in the case of its successor ?

Mr. Moon also showed models of the upper and lower jaws of a youth aged eighteen. The upper latteral incisors and the bicuspids in both jaws were absent, though the wisdom teeth in both jaws—and this appeared to him the special peculiarity about the case—were erupted. An absence of teeth was in this instance hereditary, for the youth's mother had the same teeth absent from her upper jaw, but in her case no wisdom teeth had appeared.

Mr. S. J. HUTCHINSON asked whether any of the other dermal structures were affected in Mr. Moon's case?

Mr. MOON said that the child was well formed and natural in other respects. In the cases he had previously reported there were curious ophthalmoscopic appearances, but this child's eyes were normal. The mother, stated, however, that at birth she had no nails on fingers or toes, and no hair on her scalp; but that she had a quantity of downy hair about the shoulders. In answer to Mr. Underwood's remarks, he would say that the apparent contradiction could be easily explained. The plate pressed on the gum—the part to be absorbed—the pressure promoted the absorption and thus favored eruption; but in his case there was increased downward pressure on the tooth itself. This meant increased *use*, and the usual effect of increased use of any organ was augmented vitality and longer duration.

Mr. COLEMAN said he could quite appreciate the distinction which Mr. Moon sought to establish. A good example of the retarding effect of direct pressure was seen in the not very uncommon cases in which the first temporary molar became interlocked between the first bicuspid and the second molar; the eruption of the second bicuspid was thus greatly retarded. The good effects of diffused pressure on the gums in favoring eruption was indisputable; indeed, the habit, universal amongst babies, of rubbing their gums with some smooth, hard substance, seemed to show that a knowledge of this fact was innate in the human species.

Mr. Coleman then read the following communication which he had received from Mr. Henry Rogers, and handed round specimens of that gentleman's detachable springs, in order that they might be compared with Hempel's springs, exhibited at the previous meeting by Mr. Oakley Coles:

16 DOREST SQUARE, January 27th, 1879.

DEAR MR. COLEMAN:—

I was absent from the Odonto meeting on the 13th, when you referred, in what I consider complimentary terms, to a form of swivel used by me for many years whilst practising in Hanover Square—in fact, I used no other after its introduction. My brother was unable to satisfy your inquiry as to its construction, and, therefore, I have pleasure in forwarding the enclosed description on the chance that it may interest you.

Wherever practicable, the attachment to the artificial denture was by a flat-headed screw, having a shallow shoulder, around which the eye worked. The eye-ring, where it surrounded this shoulder, differed from the ordinary, in being broadest where friction is greatest: namely, on the side towards the closed bite. The shank upon which the spring is forced, instead of being made, as usually of solid wire, consisted of a thin tube split longitudinally and rotating on a slender axis. One end of this axis was soldered into an aperture in the bent-up portion of the eye, and to the other end a small button was soldered to prevent the escape of the tube. Thus constructed the shank could accommodate itself by rotation to such relative variation in the planes of the screws and eyes as might arise during the spring's action, thus diminishing strain on the spring, and also any consequent tendency to displace the dentures on the gums. Another advantage was, that patients could themselves easily replace a broken spring by a new one; since much less than the usual force was required to attach and detach the spring, whilst the rotating tubes ensured coincidence in the planes of its two ends without any care on the patient's part. Of course, every shank and every spring-end was arranged accurately to the same gauge. The shank was shorter than in the ordinary swivel, which I considered an advantage. As to duration—even in cases where the wearing-away of the eye-spring was considerable—that of the tube and axis was scarcely appreciable. The various parts were machine-made, and the time and cost of production were about the same as of ordinary eyes.

With kind regards, believe me yours faithfully,

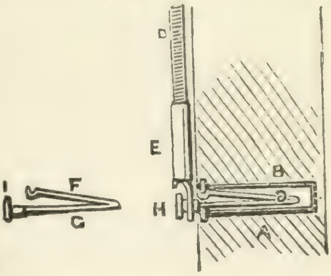
HENRY ROGERS.

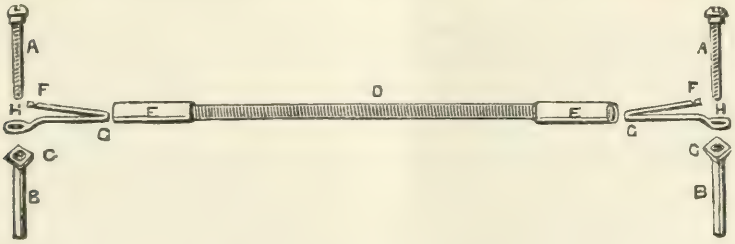
Mr. Coleman added that he had tried some years back to induce Messrs. Ash to make these swivels regularly and to keep them in stock, but they had not thought it worth their while to do so. He hoped now that some enterprising maker would take the matter up, and that members of the profession would be able to obtain them without the trouble and delay which had hitherto been necessary.

Mr. OAKLEY COLES said he had exhibited Mr. Hempel's invention simply because he had been asked to do so in his official capacity as one of the secretaries of the Society.

The following description and woodcut would probably render the subject clearer to those members who were not present at the previous meeting.

The springs (D) have their ends fixed in gold boxes (E) giving them a finish, both for comfort and appearance. The loops (F G H) are made on the principle of necklace-fasteners, and can be instantly attached to, or detached from, the springs, enabling a patient to remove and thoroughly cleanse them. As the springs readily revolve on the loops there is no fear of their being fixed on the *twist* by inexperienced hands, for they will adjust themselves. The bolts (F G I) are arranged on the same principle for removal, so that patients can with ease use a set with springs, or by suction, as they feel disposed. Where this is not likely to be the case the bolts may be formed of a screw and socket (A B).





The President said he had examined Mr. Hempel's springs, and thought they were carefully and skilfully made; the plan involved, however, occasional disadvantages. If, for instance, the spring had to be attached to the band of gold round a tooth, the soldering would materially diminish the elasticity of the clasp.

Mr. Moon said he always used Mr. Rogers' springs and swivels, and had done so for several years, ever since the invention had first come under his notice. He had found them most convenient and a great improvement on the ordinary arrangement.

Mr. Coleman then showed a new face-piece for gas and ether inhalation, made by Messrs. Barth. The old plan was to make the face-piece of thin soft metal, covered with leather; this was adapted to the face by bending the metal to fit the inequalities. But the leather soon began to peel off, and, after a time, the metal itself was apt to crack, and the whole thing was useless. To obviate this, some had been made of firm metal, fitting to the face by means of an airpad fixed round the edge of the metal, but these were heavy and too rigid. That now offered by Messrs. Barth was made entirely of india-rubber: it was simple, light, efficient and very durable.

Mr. Coleman also showed a model, illustrating the disadvantages of removing the two first bicuspids in the upper jaw before the canines had fully descended, in order to allow room for the expansion of the front teeth. It would be seen, that although the bicuspids were absent, the front teeth were very short and crowded: the lower teeth biting in front of the upper. He had fitted a plate to throw out the front teeth, bearing especially on the lateral incisors. The patient was thirteen years of age.

The President said he quite agreed with Mr. Coleman that the removal of the bicuspids, under these circumstances, was contrary to good practice.

Mr. Charles Tomes exhibited a model, showing the disastrous results which might be caused by the injudicious application of regulation-plates. The patient, aged ten and a half, had been under continuous treatment for two years She had worn a vulcanite plate capping all the upper teeth except the incisors, and this was actually kept up by wires clasping the permanent lateral incisors: the object was to correct an underhung bite by pressing forward all the upper incisors. The result of this treatment was as follows:

The lower incisors bit upon the backs of the upper incisors near to their tips. The latter teeth were excessively tender and loose, and, when the plate was out of the mouth, had to sustain the full force of the bite, as the continuous capping for two years of all the back teeth had resulted in so depressing the six-year-old molars and temporary teeth that they were half buried in the gum and failed to meet their antagonists by about half an inch. The first bicuspids were just coming through. The question now was, how could this state of things best be rectified? He should have been inclined temporarily to suspend all treatment, but for the certainty that unless something could be done quickly to relieve the violent concussion between the upper and lower incisors the former would soon be lost. The upper centrals were, in fact, so tender and inflamed that nothing could be done with them at present. He had, therefore, fitted a plate bearing only on the remaining temporary teeth, with the view of allowing the bicuspids and the six-year-old molars to grow up to their normal level and so take the force of the bite off the incisors: he was trying at the same time to draw back the lower incisors.

The case was one of the most troublesome and perplexing he had yet met with, and he should be glad if any of the members present could suggest any improvement on the plan of treatment which he had indicated.

Mr. Moon thought that Mr. Tomes had clearly decided on the right plan of treatment. He thought, however, that with proper care most cases of underhung lower jaw could be advantageously treated before those of the temporary teeth. He had treated a child eight years old successfully by means of a regulation-plate. In the case of a child four years old he had constructed a metal plate covered with rubber with a handle attached. The child was taught to hold this between the teeth, and to bite on it, and the frequent use of this simple instrument soon had the desired effect. The child's father and grandfather were both underhung.

Mr. Walker said he had treated a child aged four by means of a plate capping the lower teeth ; the child was now seven years old, and his face was much improved. In that family the father, two sisters and a brother, were all underhung. In the case of another child now under treatment, the father, brother and sister, were all underhung.

Mr. Hutchinson said that he had treated a child aged two and a-half years successfully by means of a regulation-plate ; and in the case of an infant aged fifteen months, he had corrected an underhung bite by the simple expedient of teaching it to suck its thumb. He thought, however, that as a rule it was better to leave the cases alone until the bicuspids were completely erupted, and the twelve year old molars were making their appearance. This was at all events the most favorable age, for, if you commenced treatment earlier, you could not facilitate the cure by the extraction of some of the temporary teeth, but at the age he had indicated, extraction and expansion might often be combined with advantage to the patient.

Mr. Coleman said he had seen many cases of failure due to the mistake of commencing treatment too early. The case he had brought forward that evening was one of them. That youth had very crowded teeth ; in order to make room, the upper first bicuspids were removed almost as soon as they appeared, and the result was that his front teeth were just as crowded as before. With regard to Mr. Tome's case, he thought that in the conditions under which he found himself his proposed plan of treatment was excellent. He would suggest, that, in addition to the plates as now fitted, the child should wear a cap fitting closely to the head, with a strip of elastic webbing passing round the chin and pressing back the jaw. The surprising effect which could be produced by moderate pressure continuously applied was seen in the deformities resulting from the contraction of the cicatrices of burns, and he had seen very good results from the above plan of treatment when applied at an early age.

Mr. OAKLEY COLES thought it was a mistake to treat the upper instead of the lower incisors for underhung bites. He agreed with Mr. Coleman that more benefit would often be obtained by acting on the lower jaw as a whole than by acting on the teeth. This plan of treatment could not be commenced too early, and at an early age the alteration in the shape of the jaw was easily effected. It should be remembered, also, that a regulation-plate only altered the position of a few of the teeth, and often left their relations to their antagonists very unsatisfactory; but in pressing back the jaw all the teeth moved together and gradually, and they kept their register much better.

Mr. CHARLES WEST thought the best treatment to be pursued would depend very much on the contour of the patient's face. He thought he should have been inclined to fit a metal plate capping the lower incisors.

Mr. HENRY thought it would have been better to let the child rest until the bicuspids were erupted.

Dr. FIELD said it was impossible to decide as to the best treatment without seeing the patient. Judging only from the model, the front teeth seemed to protrude; if so, he should use the elastic bandage. But if this was only apparent, and due to the bad management of the case, he should be inclined to extract a temporary molar on each side.

Mr. TOMES said he thought that most of the speakers had not fully appreciated all the difficulties of the case. He should have been glad to have left the case alone for a time, but this was impossible, for the upper incisors would soon be lost if they were allowed to continue to bite on the lower, and they must be saved if possible. Then the child's face would certainly be improved by pushing out the upper incisors, but these were too tender for any treatment, however gentle; so that he had to content himself with attempting to save the upper and with drawing back the lower incisors.

Mr. STEELE said he desired to call the attention of the Society to the fact that the Worshipful Company of Cutlers, with which he was associated, had requested him to mention that in furtherance of the cause of technical education they intended to hold an Exhibition of Cutlery, at their Hall in London, in May next. The exhibits will include a department of surgical instruments, ancient and modern, which embraces those used in dentistry. If any members having instruments of interest would kindly lend them for the occasion, it would be highly appreciated. Letters upon the subject may be addressed to the Hon. Secretary of the proposed Exhibition, Mr. R. J. Cheesewright, Town Hall, Croydon, and would receive every attention.

The President then proceeded to deliver his Introductory Address:

Gentlemen,—By your kind suffrages and in fulfilment of a recent alteration in the mode of election, by which Past-Presidents alternate with those elected for the first time, I find myself again, after a lapse of fifteen years, in the honorable position of President of the Ondontological Society. By this nnovation, which was proposed by Mr. Vasey (in an admirable spirit of self-abnegation, for by it his own presidentship was postponed), and warmly advocated by my immediated predecessor in this chair, in the same spirit of self-sacrifice, it was thought that the identity, the traditions, and in some degree the prestige of the Society would best be preserved. To what extent these objects have been or are likely to be realized we are happily not now called upon to determine, but I may say, that, though I had begun to regard myself as retiring from all prominent and public engagements, yet, having yielded to the solicitation of some old and valued friends to accept the office, it will be my aim, relying upon your kind co-operation, so to discharge the duties as to promote most effectually the best interests of the Society. I trust it will not be inferred from this that the honor of representing this Society was not duly appreciated, or that it was simply a case of preferring ease and avoidance of work. These considerations would have had but little weight if I had not felt a distrust of my own fitness for the office, and if I had not known that without this intervention the mantle would have fallen on shoulders well fitted to wear it with dignity. From old association, no less than from present achievement, this Society is very dear to me. I assisted at its birth, and may regard myself as its godfather, having proposed the name which, after many objections, as that it was uncouth, pedantic, too long, difficult to pronounce, &c., was at length unanimously adopted. Nor has that attachment ever wavered or suffered diminution, either by the seductions of novel associations or by those inevitable temporary suspensions of harmonious relations which are incident to all human institutions.

I should be more or less than human if I could resume this position after the lapse of fifteen years without some tinge of sadness mingling with feelings of satisfaction called forth by such a retrospect. Of how many who were endeared to us from earnest collaboration in the formation of this Society, and who, by their constant and genial presence, lent a charm to these gatherings, are we doomed to say that their places know them no more! How many whose names are honorably inscribed on yonder tablet, and whom we had come almost to regard as necessary to the very existence of the Society, are now gone from our midst! But, having paid this passing tribute to their memory, we will indulge in no vain regrets over the irrevocable past, but rather rejoice that their places are so well filled by their successors, and that the Society lives in all its pristine life and vigor :—

> "For men may come and men may go,
> But *it* goes on forever."

There would seem to have been in all ages an ineradicable tendency in human nature unduly to estimate the known and the past over the untried and the present, for amongst the words of wisdom of a very early period is found a caution on this subject, "Say not thou that the former times were better than these, for in that thou sayest not wisely." I think we might seem neither very wise nor very candid if we could refrain from giving a cordial greeting to those who are so worthily filling or preparing to fill our places; who, profiting by educational advantages which did not exist for their predecessors, devote their fresh intellectual energies, as yet undimmed and unwearied by the monotonous routine and the exhausting drudgery of an exacting profession, to original scientific research and to the thorough investigation of all appliances, preparations, or modes of treatment, likely to be of advantage to the profession. While its ranks continue to be recruited with men of this stamp there should be no misgiving as to the future of the Society, but on the contrary every ground for assurance that it will long continue to represent the profession of Dental Surgery, to guard its interests, to promote and encourage scientific inquiry and to be a rallying-point of social reunion. So far, then, from dwelling on the past with despairing or regretful interest, we will look forward with eager hopefulness to a career of increasing lustre and achievement. Many and great events have marked the period of which we have been speaking, a period rich in materials for history and full of grave results as affecting the political or social well-being of mankind, in some cases realizing aspirations after unity, in others removing ancient landmarks and leading to a rearrangement of geographical boundaries. It has witnessed the welding together of the fair and classic lands of the sunny south into one united Italy ; and the rise and consolidation of the Great German Empire, that fatherland so long the dream of the poet and the aspiration alike of the statesman, soldier, priest and peasant ; and it has also been witness to that stupendous duel between two powerful nations foremost in the rank of culture and civilization, the one pre-eminent in all that lends grace and charm to existence, and the other renowned for its learning and intellectual progress, and occupying a high place among the philosophers, the poets and the scientists of the age. Let it not be supposed that because we are specialists we can be unmoved by the events of the great world, or that the discoveries of science, in which this age is so peculiarly rich, possess no interest for us unless applicable to our own kind of work. Rather let us endeavor to keep abreast of the times in this respect, so as not to incur the reproach of being men of one idea, and with a limited range of thought. Nevertheless, cititzens of the world though we may be, our chief interest must always center round our own speciality, and this also has partaken of the general movement ; we also have our history. This is not the fitting occasion for entering into the politics of the profession, nor, even if I possessed the requisite ability and knowledge of the subject, has the time arrived at which a sound judgment could be formed of the results of what has been recently accomplished in the way of dental reform and legislation. That at length, however, and after much labor and thought, registration and a legal sanction have been obtained for our profession must be a matter for unfeigned congratulation on the part of all who have its true interests at heart. This, which had only been too long delayed, may be regarded as the crowning of the edifice, the corner-stone of which was laid some twenty years since. Whether this might not have been obtained without a separate and special Act of Parliament, and whether its provisions might not have been restricted to the recognition of those only who practised dentistry pure and simple, are questions which I, for one, am quite content to leave unsolved now that the great fact of registration is assured. And I do this the more readily because it was my misfortune to be unable to support the measure as it was originally drawn, placing in the same category and subjecting to the same penalties the educated Member of the Royal College of Surgeons and the mercenary and uninstructed empiric : and I gladly take this opportunity of stating that it was this, and this alone, which prevented myself and others from the hearty co-operation which it would otherwise have had. This obstacle, which had too long blocked the way, was at length removed, and then your plenipotentiaries returned in triumph, bringing Peace with Honor. For thus they obtained such protection and such powers as must, in time, purge dentistry of much at least that was hideous and humiliating to men of culture and sensibility; and this without dissociating it from the great Surgical body, so that the question which had begun to be asked, Is Dentistry a Profession or a Trade? receives an irrefragable answer in the fact of such association; for, if it be a profession, it can only be as a part of surgery; detach it from that august body and it has to create a status for itself which may be challenged; associated with it its position is guaranteed, and it receives its passport to public estimation. Another and not unimportant event, and one the value of which has scarcely received full recognition, is the removal of our representative institution, the Dental Hospital School and Odontological Society, to the building in which we are now assembled. From the commencement of the organization of the profession these three institutions have been grouped together, and, like three strands of a chord, they acquire strength by association, an arrangement which it is to be hoped may long continne to their mutual advantage. In selecting our first home in Soho Square, we were more attracted, probably, by its suitability for the purposes of the Society than for those of a hospital. There was, it must be admitted, a handsomer and more symmetrical meeting room than we now possess, but, beyond this single recommendation, it was extremely ill-adapted for our various uses. Hid away in an obscure corner, where, from the confined space and the height of the surrounding buildings, it was impossible to get the requisite amount of light or air, the work of the hospital was carried on under very unfavorable conditions. But when the growing reputation of the School brought an annually-increasing number of pupils, it became evident that if it was to maintain its ground as a representative institution it must be removed to a larger sphere. As there were no available funds for such an enterprise, which involved not only the acquisition of new premises, but the disposal of those then in occupation, it became a rather serious responsibility. By the liberal co-operation, however, of many old and tried friends of the profession, the transference to the present building, affording ample space, light and air, was effected without interrupting for a single day the work of the Hospital, and not only without incurring debt, but with a not inconsiderable addition to its small amount of funded property. Only those who can call to mind the close, imperfectly-lighted room, with its half-dozen chairs, of various and almost equally unsatisfactory construction, and the tedious waiting for opportunities of practice in the former house, can adequately appreciate the change. It may be stated, however, that the income of the Hospital rose from £965 in 1873 to £1,455 in 1874, the year of removal; and the number of cases treated has increased from 21,904 in 1873 to 29,679 in 1877. At the same time the efficiency of the School was augmented by some thirty well-constructed chairs placed under favorable conditions of light, by which the tedium of waiting was obviated both to patient and pupil. It is not too much to say that such a development of both Hospital and School would have been impossible in the former building. It has been admitted that the superiority of the present building is chiefly apparent as regards the work of the Hospital and the School, though the improved light and space for the Museum and Library amply compensate for any shortcomings in the Meeting-room of the Society. With all these advantages which, as a whole, are without a rival in any part of the world, it is difficult to discover a valid and satisfactory reason for the formation of another, I will not say a rival Society. Of course, it is competent for any number of men engaged in similar pursuits, or who have been educated at the same school, to associate themselves together, but when the machinery and organization of a Society, with its Transactions, its well-filled Library, and a Museum, such as can only be the result of years of discriminating care and labor, already exist, such a proceeding would seem to be rather a matter of regret than of congratulation. The defection of old friends must always be deplored, and may be a source of weakness; nevertheless, conscious of our own strength and numbers and deprecating any idea of rivalry, we frankly acknowledge that in all that they have done as a Society they have upheld the profession and drawn closer the bonds that unite it to the Medical world.

So much for matters of moment of recent occurrence which claim a place in our own domestic annals. And having inflicted my tediousness upon you to this extent, I will not even glance at the discoveries and improvements which may have been introduced during the same period. It is true that these have been from time to time brought under the notice of the Society, but I cannot help thinking that in competent hands a *résumé* on this subject would well occupy one or more evenings during the present session. Shall I be thought too sanguine if I express the hope of soon being able to make an announcement to this effect?

And now, in conclusion, I am tempted to throw out some loose speculative thoughts in reference to the future. The present time is one of change and of great intellectual energy, and a huge wave of discovery has set in, especially in reference to electricity, which, while it may cause great changes in the aspect of modern social life, can scarcely be expected to be wholly without influence on our own speciality. It can hardly be doubted that it will become pretty general at no distant time for the practitioner in our department to have the means at hand of directing a beam of electric light into the oral cavity. But it has other potentialities. Is it forbidden to hope that the nerves of sensation may be so acted upon by a continuous current with or without local narcotization, as to be for the time deprived of sensibility without permanent damage? May we not look for the good time when the work of the drill and of the excavator in the preparation of the cavity, always irksome, but amounting to torture in persons of delicate and sensitive organization, may come to be regarded with indifference, or will such a power be the outcome of the remarkable experiments of Professor Charcot? The control which he exercises over the nervous system of his patients, momentarily suspending or re-establishing sensation, now over the whole body, and now over one-half, and again reversing these proceedings, would seem to show that there is yet much to be made out in reference to Anæsthesia. Interesting, however, as these experiments are in a pathological, or even in a physiological point of view, their practical value is impaired by the fact of their being selected cases, in which the nervous system is attuned to a high degree of susceptibility, not unmixed, as has been shown by Dr. Carpenter, with some amount of expectancy of the results sought to be produced. But may we not indulge the hope, both for our own sakes as well as for those of our patients, that we are on the eve of further discoveries in the way of local Anæsthesia? Should it be thought incredible that this subtle force may come to the aid of the physician, and in the most liberal sense throw a new light on disease? that the electric light may ultimately be made available for rendering the living body, or parts of it, luminous, so that morbid changes in important organs may be detected at a very early stage, and with the certainty of ocular demonstration? so that diagnosis shall be no longer a matter of conjecture or inference from symptoms, supplemented by the report of test tubes, as to the condition of secretions, or by stethoscopic audition, but of ascertained fact? Is there anything more hard of belief in such an application of electricity than that the vibrations caused by the peculiar pitch and tone of our own voice should be transmitted through miles of slender wire to be perfectly reproduced by means of vibrations identical in character? But to return to what concerns more immediately our own speciality.

Will the time ever come when our proceedings will no longer be impeded by the deluge of saliva which is the natural concomitant of work in the mouth? When instead of the ingenious hydraulic arrangements for draining off the saliva, now in vogue, we shall be in possession of means for temporarily arresting the function of the gland and so stopping its secretion? And, lastly, when we have eliminated those twin torments of the Dental art, sensibility of structure, and the invading moisture, shall we arrive at a material unobjectionable in color, having the plastic, the preservative, and the non-conducting properties, as to heat and cold, of gutta percha, combined with such hardness as to make it resist the effects of attrition? The quest for such a material which may be more easily and quickly applied, and which shall possess greater homology with the tooth substance, is quite compatible with full appreciation of the present perfection of the art of using gold for this purpose, characterised by the high finish and technical skill which it has attained in the hands of our "kin beyond the sea" as well as by many of our own countrymen, and even under this very roof. In possession of such a material how immeasurably would our usefulness be extended by economy of time no less than by conservation of force. Is it Utopian to entertain such an expectation which would abolish much that is irksome and much that is distasteful both to the operator and to his patients, and may it not be that the dentist of the future will recall with wonder the time when four or five hours were expended in welding and condensing a mass of gold into one tooth? Those who can remember the laborious process of working the tusk of the hippopotamus as a base for artificial arrangements before the introduction of vulcanite, will be at no loss to detect in this a parallel case in respect to waste of energy.

Gentlemen, I thank you for the honor you have done me in again electing me your President, as well as for the patience with which you have listened to these, perhaps, profitless lucubrations.

BALTIMORE COLLEGE OF DENTAL SURGERY.

The Thirty-Ninth Annual Commencement of the Baltimore College of Dental Surgery was held at the Academy of Music, on the evening of March 6th, 1879, before a large and brilliant audience composed largely of ladies, as is usual on such occasions. The Faculty of the College, many of the Alumni and the Graduates occupied the stage, together with many distinguished in the dental and medical professions. The legal profession was represented by the Hon. Judge George Wm. Brown, of Baltimore, and others. The Fifth Regiment Orchestra, Professor Itzell, director, rendered a number of fine selections during the evening. The exercises were opened with prayer by the Rev. Julius E. Grammer, D. D., Rector of St. Peter's Church, Druid Hill Avenue.

The announcement of Graduates was made by Prof. F. J. S. Gorgas, Dean, embracing the following, forty-one in number:

Name and State.	Subject of Thesis.
A. M. I. Hein, Germany	The Teeth.
A. H. Grieffenhagen, Germany	Extraction of Teeth.
Samuel Edward Jones, Texas	Dental Caries.
Frank Pearce Bernard, Pennsylvania	Special Senses.
William Rust Laws, Maryland	Irregularity of the Teeth.
Juan Bautista Lombard, Cuba	Stomatitis.
Edwardo Lombard, Cuba	Aneurisms of the Tongue.
Bolivar J. Quattlebaum, South Carolina	Alveolar Abscess.
William Roberts Renalds, Virginia	Dental Caries.
James Armstead Colvin, Virginia	First Dentition.
Laurence Stafford Wolfe, South Carolina	Stomatitis.
Charles M. N. Latimer, District Columbia	The Teeth of Man
Andreas C. Ferrari, Russia	Treatment of Dental Pulp.
J. Allen Patterson, South Carolina	Treatment of Dental Pulp.
Gordon White, Tennessee	Neuralgia.
Frank Brumit Perry, Virginia	Treatment of Dental Pulp.
Arthur Monroe Rice, Connecticut	Treatment of Dental Pulp.
John C. Wilkerson, Alabama	Dental Caries.
Robert P. Fletcher, Virginia	Treatment of Dental Pulp.
John Madison Phillips, North Carolina	Treatment of Dental Pulp.
Richard Hance Billingsley, Maryland	Maxillary Sinus.
Thomas Sadler Jordan, Alabama	Dental Hygiene.
William M. Rawlinson, South Carolina	Filling Teeth.
Thomas G. Morrow, Maryland	Circulation of Blood.
Richard Grady, Maryland	Treatment of Pulp.
John P. Coult, New Jersey	Treatment of Pulp.
Charles Eckhardt, Louisiana	Odontalgia.
William H. Weems, Texas	Treatment of Pulp.
Francis S. Habris, North Carolina	The Care of Children's Teeth.
Edwin D. Akers, Pennsylvania	Inflammation of Gums.
T. Disbrow Stone, New York	Caries.
Elroy F. Cross, Massachusetts	Treatment of Pulp.
Edmund C. Bryant, Maine	Treatment of Pulp.

Name and State.	Subject of Thesis.
Edwin J. Parkison, Maryland	Salivary Calculus.
Alfred F. King, New York	The Six-Year Molars.
Hall Lewis, District Columbia	Treatment of Pulp.
Samuel M. Roach, Georgia	Filling Teeth.
Edward Flannigain, Maryland	Artistic Dentistry.
Richard B. Winder, Jr., Maryland	
John A. Millard, France	
Henry Bentley, Connecticut	

Sixteen of the United States were represented, and also Germany, France, Russia and Cuba.

The degree of "Doctor of Dental Surgery" was conferred upon the above-named students by Prof. F. J. S. Gorgas, Dean of the College. Before conferring the degrees the Dean announced the union of the Maryland Dental College with the Baltimore College of Dental Surgery, under the charter of the latter; and also the election of Prof. Richard B. Winder, D.D.S., M.D., to the Chair of "Dental Surgery."

The Faculty as now constituted is as follows:

Ferd. J. S. Gorgas, A.M., M.D., D.D.S., Professor of Pathology and Therapeutics.

E. Lloyd Howard, M.D.,Professor of Chemistry and Materia Medica.

James H. Harris, M.D., D.D.S., Professor of Clinical Dentistry.

James B. Hodgkin, D.D.S., Professor of Dental Mechanism and Mettallurgy.

Thos. S. Latimer, M.D., Professor of Anatomy and Physiology.

Richard B. Winder, D.D.S., M.D., Professor of Dental Surgery.

Geo. H. Chewning, D.D S., Demonstrator of Operative Dentistry.

Augustus W. Sweeny, Jr., D.D.S., Assistant Demonstrator.

John C. Uhler, D.D.S , M.D., Demonstrator of Mechanical Dentistry.

Luke J. Pearce, D.D.S., Assistant Demonstrator.

Charles F. Bevan, M. D., Demonstrator of Anatomy.

The Valedictory Address was delivered by Rev. Alex. W. Weddell, D.D., of Richmond, Va., who, in his interesting and highly appreciated remarks, alluded to the origin of the valedictory, and said, that after his own experience, as a graduate, listening to a valedictorian for two solid hours in the heat of a July sun, he could appreciate the graduates' feelings when waiting to receive the smiles and congratulations of their many fair friends, and would hail with cordial support a seventeenth amendment prohibiting their appearance forever on American soil. The Baltimore College was highly eulogized by the speaker, who touched upon the various courses of study, and said that each one of the graduates on this occason had a solid foundation on which to build their superstructure. "Those who had left this, the oldest institution in the country, and who now numbered nearly nine hundred, have proved to the world that the work of the College has not been misjudged."

"The Dean of the Faculty in placing in your hands, young graduates, the diploma of the College has placed among these other names your own, and it rests upon you to see that the honor is well sustained. The woes of humanity, like the wounds of Cæsar, are voiced in prayer for help. To such prayer your hearts lend a responsive ear. The deeper your insight in the evil threatened and into the evil existing, the greater will be your determination to toil after the best preventive and the most certain cure, and your professional pride, saturated with generous sympathies, will render you liberal, and such a life can never know the shame of failure."

The Class Address was delivered by Frank B. Perry, of Virginia, of the Graduating Class, and was a well prepared oration, fluently spoken. The graduates were the recipients of many beautiful bouquets on receiving their Diplomas. The benediction, by the Rev. Dr. Grammer, closed the exercises at the Academy.

The number of matriculates for the Session just closed was eighty-two.

The Fortieth Annual Session will commence on the 15th of October, 1879, and continue until March, 1880.

PHILADELPHIA DENTAL COLLEGE—LIST OF GRADUATES, SESSION 1878-79.

Name and State.	Thesis.
ALBERT AGRAMONTE, Cuba	Conservative Treatment of the Pulp.
JOHN K. AHL, Pennsylvania	Digestion.
RICHARD BARNETT, M.D., M.R.C.S, Ireland	Operative Dentistry.
FRANK L. BASSETT, Pennsylvania	Conservative Treatment of the Pulp.
CHARLES W. BEACOM, Pennsylvania,	Conservative Treatment of the Pulp.
J. H. BEALS, Massachusetts,	Blood and Organs of Circulation.
WILLIAM BERKOWITZ, Pennsylvania	Diseases of the Maxillary Sinus.
ADOLPH E. BIRGFELD, Germany	Disease of the Antrum Highmorianum.
L. L. BUCKLAND, C. E., Rhode Island	Dental Education.
ISAAC M. CASE, Maine	Neuralgia.
WILLIAM H. COLGROVE, New York	Conservative Treatment of the Pulp.
CHARLES C. CONWELL, Nevada	Alveolar Dental Abscess.

Name and State.	Thesis.
Edward P. Day, Pennsylvania	Construction of Celluloid Dentures.
Robert T. Delano, Massachusetts	Conservative Treatment of the Pulp.
Joachim Dioré, Mauritius	Treatment of the Teeth.
Charles P. Dixon, Pennsylvania	Treatment of the Deciduous Teeth.
Frank R. Faber, Pennsylvania	Conservative Treatment of the Pulp.
P. M. George, Georgia	Taking Impressions of the Mouth.
A. W. Gray, Tennessee	Circulation of the Blood.
Edward W. Hiteshew, Pennsylvania	Oral Secretions.
T. H. Husband, L. D. S., Canada	Dental Histology.
F. H. Hudson, England	Dental Aesthetics.
Alphonso Irwin, New Jersey	The Saliva.
R. H. John, Pennsylvania	Operative Dentistry.
Robert M. Kalloch, Massachusetts	The Fifth Pair of Nerves.
Phil. H. Keese, Ohio	Iodine.
Samuel Keiser, Ohio	Indications for Extraction.
William A. Knowles, M. D., California	Bone.
A. M. Koons, Pennsylvania	Physiology of the Teeth.
S. M. Lempart, Roumania	Salivary Calculus.
H. D. Lynam, Delaware	Mineral Base Teeth.
William P. Mitchell, Pennsylvania	Ulcus Oris.
C. Julius Móczár, Hungary	Continuous Gum Work.
John B. Morrison, Indiana	The Coming Filling.
Harry W. Orr, Pennsylvania	Hygiene.
Felix C. Penton, Cuba	The Mouth and its Functions.
Josef Perl, Hungary	Periodontitis.
Moriz Pfab, M. D., Austria	Neuralgia.
John A. Sandusky, Tennessee	Histology of the Teeth.
Manuel Suarez, Mexico	Congestion and Treatment of Dental Pulp.
Ludwig Semler, New York	Conservative Treatment of the Pulp.
Lyman W. Sibley, Massachusetts	Odontalgia.
A. C. Spain, Jr., South Carolina	The Dental Pulp.
W. T. Stooksbery, Ohio	Sulphuric Ether as an Anesthetic.
Filipp Ungar, M.D., S.D., Hungary	Digestion.
J. K. Wiley, Massachusetts	Treatment of Devitalized Teeth.
E. V. Wingard, California	Digestion.
Ezra H. White, Maine	Neuralgia.
Thomas H. Whitney, Jr., New Jersey	Construction of Continuous Gum.

PAPER TEETH.

Paper teeth are a new invention in Germany, and a number of specimens were displayed at the late exhibition in Berlin. They are warranted fully as durable as any other teeth.—*Am. Journal of Dental Science.*

OHIO COLLEGE OF DENTAL SURGERY.

The Thirty-third Annual commencement of the Ohio College of Dental Surgery was held March 5, 1879, in Cincinnati.

Dr. W. H. Morgan, of Tennessee, delivered the annual address, and Dr. R. G. Richter, of Wisconsin, the valedictory. The degree of D. D. S. was conferred on the following graduates :

Name and State.	Thesis.
W. N. Alsop, Kentucky	General Circulation of the Blood.
E. W. Anderson, Indiana	Operative Dentistry.
Otto Arnold, Ohio	Conservative Treatment of Dental Pulp.
T. S. Brown, Pennsylvania	Artficial Dentures.
Allen Budd, Indiana	Gold.
Perry Burgen, Kentucky	Conservative Treatment of Dental Pulp.
W. Hart Cameron, Ohio	Gold as a Base for Artificial Teeth.
Oscar Heise, Ohio	Conservative Treatment of Dental Pulp.
H. E. Highlands, Ohio	Conservative Treatment of Dental Pulp.
W. H. H. Hunter, Ohio	Conservative Treatment of Dental Pulp.
H. P. Kelly, Ohio	The Antrum and its Diseases.
C. W. Moffett, Kentucky	Physiology.
W. F. Magie, Ohio	Caries of the Teeth.
H. L. Moore, Ohio.	Preparing Cavities, Filling Teeth, and Materials Used.
C. J. Phillips, Pennsylvania	Conservative Treatment of Dental Pulp.
W. S. Rawles, Indiana	The Circulatory System.
W. F. Redman, Kentucky	Dental Caries.
R. G. Richter, Wisconsin	Conservative Treatment of Dental Pulp.
A. G. Rose, Ohio	Conservative Treatment of Dental Pulp.
I. Sanger, California	Operative Dentistry.
J. B. Stevenson, Ohio	Digestion.
James Stockton, Ohio	Alveolar Abscess.
C. W. Wardle, Ohio	Digestion.
J. L. Young, Tennessee	Caries of the Teeth.

PENNSYLVANIA COLLEGE OF DENTAL SURGERY.

The twenty-third annual commencement exercises of the Pennsylvania College of Dental Surgery was held in the Academy of Music, Philadelphia, Friday, February 28, 1879.

Professor J. Ewing Mears, M. D., delivered the address to the graduates, and H. Newton Young, D. D. S., the valedictory.

Matriculates for the session, ninety-four.

The degree of D. D. S. was conferred on the following persons :

Name and State.	Thesis.
George B. Barnes, New York	The Pulp.
William J. Bartlum, Florida	Extracting.
Attillio Bauer, Italy	Replantation of the Teeth.
Alonzo P. Beale, Pennsylvania	Artificial Dentures.
Robert R. Bourne, Tennessee	Conservative Treatment of the Pulp.
Samuel A. Bowman Pennsylvania	Respiration.
I. Norman Broomell, Pennsylvania	Dental Caries, Effects and Treatment.
G. Carlton Brown, New Jersey	Evolution.
J. Hammond Campbell, Virginia	Diseases of Maxillary Sinus.
J. Calvin Chamberlin, Pennsylvania	Inflammation of the Pulp.
Eugene L. Clifford, Louisiana	Antral Abscess.
G. C. Cludius, Germany	On Dental Ceramic Art.
William J. Conrad, North Carolina	Conservative Treatment of the Dental Pulp.
P. B. Connor, South Carolina	Filling Teeth.
William A. Cortwright, Pennsylvania	Salivary Calculus.
Frank J. Eckert, Pennsylvania	Conservative Treatment of the Pulp.
D. Wilmot Gordon, Pennsylvania	Digestion.
Juan Guirola, Cuba	Periodontitis.
Oliver W. Hall, Pennsylvania	Diseases of the Maxillary Sinus.
William F. Henson, Pennsylvania	The Oral Cavity.
F. L. Hollister, Pennsylvania	Mechanical Dentistry.
J. W. Isenberg, Pennsylvania	Dentine, its Friends and Enemies.
Courtlen King, Pennsylvania	Exposed Pulp.
Charles F. Lewis, Vermont	Salivary Glands.
Louis Loehr, Germany	Abscesses.
George H. Lutz, Pennsylvania	Dental Etiquette.
Federico J. Merlano, South America	Materials with which Teeth are Filled.
Valentine A. Pareja, South America	Dental Caries.
Clinton B. Parker, New York	The Relation of Physiognomy to Mechanical Dentistry.
W. D. Patterson, Iowa	Filling Teeth and Filling Materials.
Antonio F. Piron, Hayti	Circulation of the Blood.
Lewis A. Reading, New Jersey	Alveolar Abscess.
G. E. Shollenberger, Pennsylvania	Salivary Calculus.
W. T. Smith, Maryland	Dentistry.
Clarence E. Stacks, New York	Materials for Filling.
A. Penn Strayer, Pennsylvania	Odontalgia.
E. N. Stump, Pennsylvania	Periostitis.
Paul J. Styer, New Jersey	The Oral Cavity.
W. E. Tizzard, Ohio	Salivary Calculus and its Treatment.
Benj. Franklin Williams, Pennsylvania	Periodontitis.
Oscar Wolfe, Switzerland.	Pivot Teeth.
H. Newton Young, New Jersey,	Periodontitis.

NEW YORK COLLEGE OF DENTISTRY.

The Commencement Exercises of the New York College of Dentistry were held at Chickering Hall, Feb. 25, 1879.

Rev. Dr. Howard Crosby delivered the address to the graduates. Dr. Benjamin F. Luckey was valedictorian.

The number of matriculates for the session was seventy-six.

The degree of D. D. S. was conferred by Dr. William H. Allen.

Name and State.
H. W. F. Buttner, Germany.
Sidney W. Bull, New York.
John Carr, New York.
George N. Fischer, New York.
Thomas A. Fletcher, Massachusetts.
Daniel T. Hill, New York.
Rudolph H. Hofhing, New York.
Charles W. Jenkins, Saxony.
Benj. F. Luckey, New Jersey.
C. A. Martinez, Cuba.

Name and State.
Henry G. Marshall, New York.
Charles W. Miller, New York.
Geo. J. Otterbourg, New York.
A. Eugene Raisbeck, New Jersey.
F. Austin Roy, New York.
Alberto F. Ricart, St. Domingo.
Domingo M. Sabater, Cuba.
Eduardo Sabater, Cuba.
T. Milton Smith, New York.
Guillermo Vargas, U. S. Colombia.

Frank R. Wilcox, New York.

UNIVERSITY OF PENNSYLVANIA—DENTAL DEPARTMENT.

Commencement of the Medical Department of the University of Pennsylvania was held Friday, March 14, 1879, at Philadelphia.

Charles J. Stille, L.L.D., Provost, conferred on the following members of the graduating class the degree of D. D. S.:

Name and State.	Thesis.
Henry C. Aldrich, Minnesota	Artificial Dentures.
A. Lactance Brodeur, Michigan	Caries and Necrosis of Teeth.
George C. Brown, Iowa	Development and Eruption of the Teeth.
Alexander McG. Denham, Scotland	Teeth and their Preservation.
J. Dorrance Dow, Pennsylvania	Alveolar Abscess.
Henry Garrett, Jr., Delaware	Dentition.
Walter La T. Graves, California	Pivoting Teeth.
W. Wayland Hayden, Massachusetts	Conservative Treatment of the Dental Pulp.
Fritz Hroch, Saxony	The Diseases of the Antrum.
Levi W. Johnson, New Jersey	Refining of Gold and Silver.
Charles G. Joy, Pennsylvania	Relation of Teeth in the Mouth.
Frank Morton Long, Pennsylvania	Conservative Treatment of the Dental Pulp.
William H. Masser, Pennsylvania	Leptothrix Buccalis.
Willoughby D. Miller, Ohio	Conservative Treatment of the Dental Pulp.
Louis DeL. Moss, Pennsylvania	Gold.
Robert J. Nickell, Pennsylvania	Mechanical Dentistry.
Alfred J. Nims, Massachusetts	Operative Dentistry.
William J. O'Doherty, Ireland	Conservative Treatment of Pulp.
John Ramsden, Pennsylvania	Circulation of Blood.
Alfred H. Scofield, Connecticut	The Approximal Cavities.
Edwin C. Timerman, Illinois	Pivot Teeth.
George H. Van Meter, Italy	Materials for Filling, Treatment of the Pulp, Filling Roots.
Charles C. Walker, Pennsylvania	Diseases of the Antrum and their Treatment.
Adolph Wetzel, Switzerland	Gold and its Use in Operative Dentistry.
Stephen L. Wiggins, Canada	Dental Minutiæ.

MISSOURI DENTAL COLLEGE.

NAMES OF GRADUATES—COMMENCEMENT MARCH 7, 1879.

Name and State.
George A. Bronson, Missouri.
Luther A. Buckner, Missouri.
Charles F. Houston, Missouri.
Charles L. Hungerford, Missouri.

Name and State.
Charles J. McBride, Missouri.
Alfred C. Ries, Missouri.
William T. Stark, Missouri.
George A. McMillan, Illinois.

BOSTON DENTAL COLLEGE.

LIST OF GRADUATES—COMMENCEMENT MARCH 5, 1879.

Name and State.	Thesis.
Charles H. Adams, Massachusetts	Conservative Treatment of the Pulp.
Henry A Baker, Vermont	Æsthetics in Dentistry.
Fred. Wm. Buffington,* Massachusetts	Salivary Calculus.
Wm. Paty Church, Rhode Island	Scrofula.
F. Alstone-Cook, Massachusetts	Conservative Treatment of the Pulp.
Edward Boynton Davis, New Hampshire	Vulcanite.
George Bradley Elliott, Massachusetts	Duty of the Dentist.
Charles Hamilton, Jr., Massachusetts	Advancement of Dentistry.
John Henry McQuade, Massachusetts	Dentistry.
William Doneson Porter, Rhode Island	Conservative Treatment of the Pulp.
Charles Burton Russell,* New Hampshire	Anæsthetics.
Sherman H. Sanborn,* New Hampshire	Salivary Calculus.
Abram Ward Spooner, Maine	The Oral Cavity.

* Diploma conferred when all conditions are fulfilled.

Washington, March 14, 1879.

Messrs. Johnston Bros.,

Gentlemen :

Will you please publish the following in the Miscellany for the information of the profession?

Yours truly,

R. FINLEY HUNT.

Baltimore, March 8, 1879.

For the Information of Dentists.—In the U. S. Circuit Court, today, in Baltimore, his Honor, Judge Bond, decided that it was not necessary for him to hear the evidence in the cases before him of the Goodyear Dental Vulcanite Co. *vs.* Dentists, inasmuch as the validity of the Cummings patent had been affirmed in this judicial district by his Honor, Judge Giles. He, therefore, granted the decree against the defendants on the bill, answer and replication, without the reading of the evidence or brief of either complainants or defendants.

DENTAL LEGISLATION NOW BEFORE THE LEGISLATURE.

STATE OF NEW YORK—No. 84.

In Senate.

FEBRUARY 3d, 1879.

Introduced by Mr. Lippitt—read twice and referred to the Committee on Public Health—reported favorably from said Committee and committed to the Committee of the Whole.

AN ACT

To regulate the Practice of Dentistry in the State of New York.

The People of the State of New York, represented in Senate and Assembly, do enact as follows:

SECTION 1. It shall be unlawful for any person to practice dentistry in the State of New York, for fee or reward, unless he shall have received a proper diploma, or certificate of qualification, from the State Dental Society, or from the faculty of a reputable dental or medical College, recognized as such by said Society; provided that nothing in this section shall apply to persons now engaged in the practice of dentistry in the State of New York.

SEC. 2. Any person who shall practice dentistry, for fee or reward, in this State, without having complied with the regulations of this Act, shall be deemed guilty of a misdemeanor, and, upon conviction thereof, shall be fined not less than fifty, nor more than two hundred dollars for each offense. All such fines shall be paid into the treasury of the county where such conviction shall have taken place, for the benefit o the common schools of the county.

SEC. 3. Every person practicing dentistry within this State shall, within sixty days after the passage of this Act, register in the office of the Clerk of the county where located, in a book to be prepared and kept by the Clerk for that purpose, giving his name, office and post-office address, and the date of such registration; and shall be entitled to a certificate of such registration upon payment to the Clerk of a fee of fifty cents.

SEC. 4. All acts or parts of acts inconsistent, or in anywise conflicting with the provisions of this Act, are hereby repealed.

SEC. 5. This Act shall take effect immediately.

NOTE.—Still another bill is before the lower house, a copy of which we expect to present our readers.—ED.

ILLINOIS STATE DENTAL SOCIETY.

The Fifteenth Annual Meeting of the Illinois State Dental Society will be held in the Hall of Representatives, at Springfield, Ill., beginning on Tuesday, May 13th, 1879.

All Dentists in Illinois, and neighboring States, are invited to be present.

EDMUND NOYES,
Secretary.

JOINT CONVENTION OF N. E. DENTAL SOCIETIES.

A Joint Convention of all the Dental Societies in New England will be held in Wesleyan Hall, Bromfield Street, Boston, June 5th and 6th. A large number of essays will be presented by able men of the profession in New England, and a cordial invitation is extended to all interested to be present.

ALBION M. DUDLEY,
Sec'y of Com. of Arrangements.

Salem, Mass., April 1st, 1879.

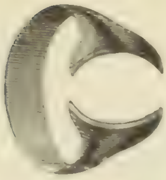
NEW BOOKS.

NEW PREPARATIONS.—A Monthly Journal of Medicine devoted to the introduction of New Therapeutical Agents. Edited by Wm. Brodie, M.D. Geo. S. Davis, Publisher, P. O. Box 641, Detroit, Michigan.

USEFUL ARTS.—A Journal of American Industries. James a Whitney, Editor and Proprietor. Published monthly. Office, No. 212 Broadway, New York City. Price, 10 cents.

TRANSACTIONS OF THE AMERICAN DENTAL ASSOCIATION, FOR 1878. *Publication Committee :* Drs. GEO. H. CUSHING, J. N. CROUSE, and GEO. W. KEELY. Chicago, 1879. A very creditably gotten up book of 223 pages. It is well printed on excellent paper. Many of its articles have before seen the light in the various dental journals, but still, the publication, in its present form, will be welcomed by many.

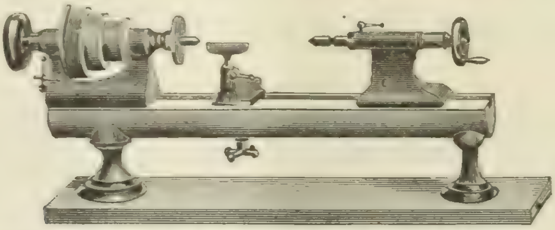
MOORE'S UNIVERSAL MOLAR CLAMP.



THIS Clamp—the pattern for which is kindly sent us by Dr. E. C. Moore—is a universal molar clamp, particularly adapted, however, for the inferior molars, where its jaws correspond nicely with the festunes of the gums. The back is wider and thicker than the sides, giving a firm hold on the tooth. It does not need to be opened much to enable it to slip over a tooth. Those we have sold hitherto have given satisfaction. Price, nickel plated, 70c.

JOHNSTON BROTHERS.

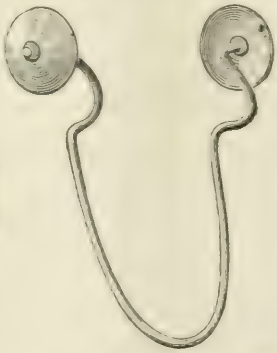
American Watch Tool Co., Waltham, Mass.



MANUFACTURERS OF DENTISTS TOOL MAKING LATHES AND FINE SPECIAL MACHINERY.

SEND FOR PRICE LIST.

Elliott's Cheek Distender.



Improved Form.

Cut is ¼ size.

This convenient device, as its name implies, is designed to distend the cheeks of a patient during operations on the teeth.

Its bow of spring wire, and the cheek pieces are polished and nickel plated. It serves, in connection with its principal use, to reflect light on the teeth. As the spring is not stiff it is worn with very slight inconvenience. *This is proving extremely popular.* Price $1.00.

JOHNSTON BROS.,

1260 Broadway, cor. 32d St., N.Y.

JOHNSTONS'
Dental Miscellany.

VOL. VI.——*May, 1879.*——NO. 65.

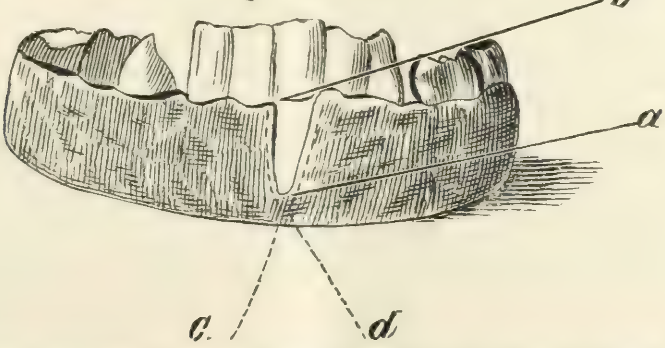
REPRODUCTION OF GUM TISSUE.

BY DR. M. RYNEAR, N. Y. CITY.

The recession of the mucus membrane from the the necks of the teeth, is a difficulty of constant occurrence to the dentist, and although this disease, in the great majority of cases, results in the premature loss of the teeth so affected, we fail to find in our text books any cure for the fatal malady. Suggestions have been made ; theories propounded ; but no definite treatment brought forward upon which the dentist could with confidence rely.

In presenting this paper to the profession, the writer desires to state that he claims no originality other than the practical application of principles which have been presented from time to time by gentlemen eminent in the profession of dentistry, careful thinkers, among whom it is a pleasure to name his revered friend, Dr. W. H. Atkinson.

Fig. 1.

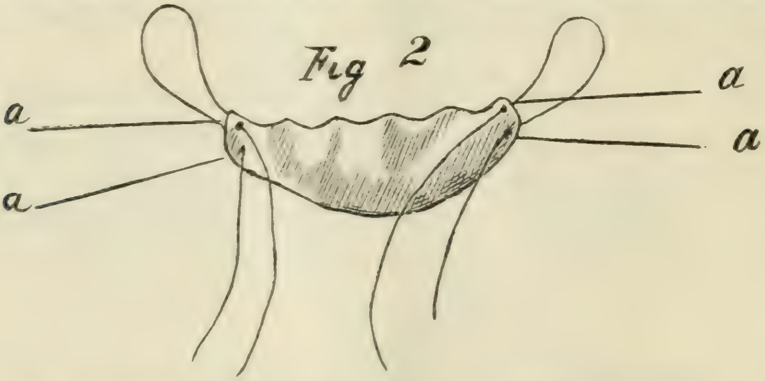


The above drawing is taken from a cast of the lower teeth of a patient where this trouble has existed over ten years, and now under treatment.

Here, it will be perceived, the recession has proceeded to a point where the apex is exposed. This case has been selected, not alone on account of its extent, but for the reason that it was seen on first coming to my office, by Dr. C. M. Richmond, of California, and Dr. E. M. Flagg, of this City; and also during treatment at a clinic held at Mr. White's Dental Depot; and at a meeting of the New York First District Dental Society, held in this City on April 2d, 1879; and it is hoped will be received with more than ordinary interest by those to whom it is already in some degree familiar.

The first thing suggested as being necessary in all cases of this character is, that the mouth be placed in as healthy condition as circumstances will admit, being particularly careful to remove all foreign substances which may have collected upon the roots of the teeth so affected. This being done, we proceed by taking an impression of the teeth, and making a plaster cast. Here we have a perfect model of the affected part, such as is represented in Fig. 1. The space A, B, in the drawing, represents the denuded portion of the tooth extending from the neck to the apex of the root; this is filled up in the model with wax in the precise manner we desire the membrane reproduced; and from this waxed model we take the metal cast on which we make our protecting apron, Fig. 2.

Fig 2



Celluloid, gold, platinum and silver, are recommended as the best materials for this purpose. The apron should be accurately fitted to the mouth, and at the points A, A, Fig. 2, holes made which will admit of the passage of ligatures. These ligatures are deemed to be the best method of securing the apron, as by them it can be tightened or loosened at will. On adjusting the apron in its place it will be found that at such places as we have placed wax on our model we have now spaces; these should be at a point opposite the denuded roots, and which, for the want of a better word, we will call pockets.

In the treatment of the case referred to above, the apron was made to pass over the gum in front of five teeth, extending from the right canin to the first bicuspid on the left side. Ligatures of floss silk were then placed around the right canine and left first bicuspid, and then through the holes in the apron A A, Fig. 2, allowing it to be suspended lightly in front of the lip, and ready to be drawn into place at the required moment. The edges of the membrane surrounding the denuded portion of the tooth, as indicated by dotted lines, Fig. 1, C, D, were now removed and the knife passed beneath, in order to scrape the periosteum of the alveolus. In this case, great care was taken not to allow the instrument to pass beneath the apex of the root, for fear of injuring the nerve. Here the apron was lifted to its place, and while the patient supported it with her finger it was firmly tied on either side. The bleeding was free but soon ceased. Great care should be taken to caution the patient not to expectorate or suck the blood, as it is necessary that the mouth should rest quiet for a short while, so as to enable the blood to coagulate in the pockets, as without this but little benefit can be hoped for. Proper care being taken not to disturb the apron, it will be hardly necessary from this time to do more than lightly scarify the edges of the newly formed membrane on each removal of the apron, until such time as the space is entirely closed, and apply such astringents as may be needed to harden the granulations. The apron should not be removed earlier than from two to four days, and should be worn in the mouth for several weeks.

In diseases of this character, the practitioner may expect to encounter more than ordinary difficulties, unless the greatest precautionary measures are adopted. In this connection, it may be well to state that, in the case referred to above, it was found necessary, after having secured the required tissue, to begin anew.

This was occasioned by the teeth, which had been separated, returning to their places, and thereby destroying the adaptation of the apron to the parts, and causing, by abrasion, the loss of the entire new tissue. On another occasion, the mouth becoming badly ulcerated, the apron was removed, and the patient told to use a little powdered alum, instead of which, on returning, she placed a lump of alum between her lip and gum, sufficiently large to last her all night. On the next morning the alum was found to be still there, but, as might have been expected, the tisue had disappeared.

It seemed impossible at one time to get beyond a certain distance in the treatment of this case, but as the difficulty was afterwards found to be occasioned by the too frequent use of an extra hard and large sized tooth brush, which was at once discontinued and a proper one substituted, the case has progressed most favorably, and it is now believed that in a few days this case will be dismissed, cured.

Figuratively speaking, in this article we have only dealt with the peelings—the outer surface of the subject—and in laying the pen aside we do so with the hope that some more competent person than the writer may be tempted, by the character of food it opens up, to taste thereof and report the results to his professional brethren.

JOSIAH BACON—THE GOODYEAR VULCANITE RUBBER COMPANY.

[*From the Stockholder.*]

The murder, as it is believed to be, of Mr. Josiah Bacon, at the Baldwin House, San Francisco, has called out interesting statements in regard to the company of which he was the most active officer and, of the invention of which it has so long held the monopoly. The Goodyear Dental Vulcanite Company is a corporation necessarily known at every point in the country wherever dentistry is practised, and as its treasurer, Bacon, was a man known personally and by reputation in all parts of the country. Of striking personal appearance, he was noted for a lack of anything like personal fear, for steady adherence to purpose and immovable determination to gain his end, whatever might be the consequences. His work has been to sustain the "vulcanite patent," concerning which there has been almost endless litigation, fighting the enemies of extension at every point and with wonderful quickness, making the warfare aggressive when there was a stronghold of law or precedent to be captured. In this special department of business, that of collecting royalties for the use of hard rubber or vulcanite in making plates for false teeth, he confronted the opposition of the 10,000 dentists in the country by exacting from them sums of money which they are legally bound to pay under judgment of court, but which were nevertheless generally regarded by them as unjust and extortionate in character. A bitter feeling of enmity against Bacon was thus engendered, intensified, doubtless, by the persistent and uncompromising spirit of the man. To gain his objects and the ends of the company, many hundreds of suits have been brought against those who refused to pay the licenses required as royalties. "Many men," avers one dentist, "have Josiah Bacon's proceedings worried into the grave."

When the old Goodyear patent expired by limitation, there was a general rejoicing among the practising dentists of the country, who believed that henceforth they would be freed from paying royalty for the use of the hard rubber for plates. It was in the application of rubber to dentistry that the great majority of practitioners expected to find most extensive business. The use of rubber does not require such special knowledge as of gold and silver in dentistry, while it was obvious that the general public would prefer to buy rubber sets, at a cost not exceeding $10, to those made of the more expensive metals. But by a brilliant move, executed by Bacon, the tables were turned upon the dentists, and the exaction of royalties was continued. It is said that Bacon was accustomed to keep records of conversations he had with dentists from me to time (and his works carried him all over the country); that he afterward made use of these transcripts as "true records" to all intents and purposes in bringing his suits. No man had better facilities for knowing the extent of the business of dentistry than he, and no man knew better how to turn to advantage the information received. In the ordinary course of business, in ordinary times, it was easy to ascertain from the books of a dentist, or from the amount of orders given for material, how much royalty was paid in individual cases. From the data thus obtained it is easy to see how a schedule of rates could be arranged, and Bacon, with his usual sagacity, devised, it is said, a grade tariff, varying from $60 to $600 a year royalty. One great cause of complaint seems to have been that this tariff was adhered to, once fixed, without regard to falling off in business or other change in the affairs of the practitioner. If the licence fee asked was refused a suit was brought, and oftentimes it seems to have compromised, the dentist paying the fee asked as a matter of economy.

Individual efforts to resist the royalty failing, the battle was taken up by the Celluloid Company. The record of the war between these two corporations is one of the most interesting in legal history. Carried to the Supreme Court of the United States, on appeal from the Circuit Court of Massachusetts, the long litigation regarding vulcanite was settled in favor of the validity of the patent, but it was by no means a unanimous decision. The minority of the bench, Justices Bradley, Miller and Field, agreed that the application for the patent in 1864 was new and independent, and should be treated as such, and as the public had enjoyed the use of the invention for more than two years previous to this application, the patent should be declared invalid. Their opinion met the hearty approval of thousands of dentists when it declared that the levy of a tribute on those dentists who had brought the plate into public notice would be a species of injustice. But the decision of the majority of the judges being against the contestants, the grievances were only intensified by this minority opinion. Bacon never hesitated to speak of the immense revenue gained by the royalties obtained, thus adding to the general feeling against him, and especially since the dullness in business began. Bacon was once in business in California, and acquired with readiness the bold and undaunted methods in vogue there. About a year since he went to California to press, in his usual way, collections of license fees and royalties. After his return Mr. Caduc, an agent of the Goodyear Dental Vulcanite Company, was in San Francisco, and was there told that if Bacon came out again to institute suits, as he had threatened to do if certain dentists did not pay up, he would be shot. Caduc told Bacon of the threats, but the latter, with other officers of the company, gave the matter little or no attention. Mr. Bacon left Boston March 18, intending to go to San Francisco to press the collection of royalties from a large number of debtors, including some forty dentists, whom he would have to sue in order to get his money. He stopped in Cincinnati and Chicago on the way, and arrived in San Francisco about the first of April. The company received various despatches indicating that collections were very difficult. The tidings of his death greatly startled his business associates. Orders were sent for his body to be embalmed and sent to Boston.

THE TALLEST MAN.—The tallest man ever actually measured was a Finlander, nine feet three and seventh-tenths inches high, and the shortest man known reached a decimal under seventeen inches in his stocking feet. So says M. Broca, the famous anthropologist.

SOME MEASUREMENTS OF SKULLS AND HEADS, SHOWING THAT DEVELOPMENT, GROWTH AND EDUCATION INCREASE THE VOLUME OF THE ANTERIOR PARTS OF THE CEREBRUM—INDICATED BY THE MASTO-FRONTAL ANGLE.

BY J. S. WRIGHT, M. D.

In the Spring of 1877 my friend, Wm. H. Dudley, M. D., requested me to look into the question of craniology in so far as it related to the ancient Peruvians. For some time previous I had been considering various questions pertaining to the brain and the skull, and this request gave my investigations, *in a more general direction*, a new impetus. And while continuing this work, whenever I could find the time, my aims were promoted by many of my professional brethren, who kindly permitted me to measure their heads. My friend, J. S. Thorne, M. D., procured for me the opportunity to measure the heads of seven South American Indians, at the time in the possession of Mr. Elias Lewis. Two of these heads are here to-night, from the Museum of the Long Island College Hospital, which owns them through the generosity of Dr. Thorne.

Before going into the main question to be considered this evening, let me bring forward some points in regard to the thickness, extent and volume of the *cortex cerebri*. And, first, your attention is called to the cranial cavity and its component parts.

The tentorium divides the cranial cavity into two cavities—namely, (1), The cerebral cavity, the greater; and, (2), The cerebellar cavity, the smaller. From actual measurements, I have found the ratio of the cerebellum to the cerebrum as 1:8.6; and the ratio of the cerebellar cavity to the cerbral cavity as 1:7.6—approximately. This average agrees very nearly with other estimates, such as 1:8.8 and 1:7.8. It must be remembered that the cerebellum does not occupy the entire cerebellar cavity, as defined above; but it occupies the greater part of it. The medulla oblongata occupies the lesser part. In early life the ratio of the cerebellum to the cerebrum is as 1 to 14, about. But the fact is, the ratio of the cerebellum to the cerebrum is not constant. The cerebellum may be large and the cerebrum small—and the cerebrum may be large and the cerebellum may be small—as the case may be. Also the ratio of the cerebellar to the cerebral cavity is not constant.

A notable fact may be mentioned in this connection: *There is a pretty constant a-symmetry of the brain and its bone-case.* The proofs of this rest upon an examination of the brain, upon measurements of the skull, and upon measurements of the head. Every anatomist has noticed that one lobe may be larger than its corresponding lobe; one can hardly find a skull that is perfectly symmetrical—it "bulges" here and there. A striking illustration of the a-symmetry of the head may be found among the *conforms* of an artistic hatter. A simple inspection of these conforms is enough to show the a-symmetry of the human head. It reminds us of the deformed heads of the Toltecans and the misshapen feet of the Chinese. And what is most remarkable, the *a-symmetry* itself is not *uniform;* no two heads are exactly alike. And this must be remembered during the comparisons that we are going to make.

The thickness and the extent of the cortex cerebri are not uniform; the thickness varies, and the extent also varies—hence the volume of the cortex cerebri is not uniform. The volume of the cortex cerebri may be approximately estimated. Let us test some of its recorded dimensions: The thickness of the cortex cerebri has been estimated at two-tenths of an inch, and the extent of its surface has been estimated at 670 square inches. This would give 134 cubic inches. No human skull was ever known whose *entire* capacity was 134 cubic inches. The average capacity of the European cranium is estimated at 80 cubic inches. The cerebellar cavity corresponding to this estimate would be 9.3 cubic inches, and the cerebral cavity corresponding to this average capacity would be 70.7 cubic inches; but the cortex cerebri occupies only part of the cerebral cavity—how much, will be determined approximately by and by. Another estimate of the thickness of the cortex cerebri is one-tenth of an inch: this would give a volume of 67 cubic inches. Take this from 70.7 cubic inches, and there remains only 3.7 cubic inches of the cerebrum; that is, on the supposition last made, the cortex cerebri would be to the rest of the crebrum as 70.7 to 3.7. On the face of it this conclusion is unsound. The fact is, the cortex cerebri varies in thickness, not only in the same brain, but in different brains. The thickness and weight of the cortex cerebri are no more constant than the thickness and weight of the skull, which will be shown to be variable. It is difficult to fix an average thickness of the cortex cerebri. Two-tenths of an inch is too large, and one-tenth of an inch is too small, perhaps. As near as I can come to a conclusion, one-eighth of an inch is near the truth. And this estimate, in conjunction with a surface of 670 square inches, gives a volume of 83.75 cubic inches, which is greater than the average volume of the human brain. Yet some measurements have afforded a higher average than 80 cubic inches for the cubic capacity of the Caucasian skull. Hence there is no doubt that a surface of 670 square inches is too much for the cortex cerebri.

Take the average diametrical dimensions of the 21 Caucasian skulls of Table No. 1; add the average base-line, 4.843 inches, to the average transverse diameter, 5.6 inches, and divide by 2, and it gives an average transverse dimension of 5.221 inches. Then add this to the average antero-posterior diameter, 7.184 inches, and an average vertical diameter of the cerebrum of 4.25 inches, and divide by 3, and it gives an average diameter of the cerebral cavity of about 5.5 inches.

Suppose we consider the cerebrum a sphere; the average volume would be 70.7 cubic inches; the average diameter would be 5.5 inches; and the average surface of this sphere would be about 51 square inches —that is, the superficial surface of the cerebrum would be 51 square inches.

Now, suppose the infolding of the cortex cerebri increases the superficial surface of the cerebrum 5 times; the entire surface of the cortex cerebri would be 255 square inches—hence the volume of the cortex cerebri would be about 31 cubic inches. This result, taken from the cerebral volume, gives the volume of the cerebral mass minus the volume of the cortex cerebri—equal to 39.7 cubic inches. Again, suppose we assume the surface of the cortex cerebri to be 300 square inches, which may be nearer the average, then the volume of the cortex cerebri would be 37.5 cubic inches, and the rest of the cerebral mass would have a volume of 33.2 cubic inches. How far these estimates are from the average facts, I am at present unable to say. In fact, I have only made an attempt to solve a very complex and difficult problem. Indeed, the approximate determination of the relative volume of the gray matter of any one of the cranial ganglia would no doubt lead to important results: *for volume must be one of the standards of comparison.*

The cubic capacity of skulls can be approximately measured by means of peas, beans, rice, wheat, shot and sand. *Dry peas are convenient and fairly reliable.* Shot will break fragile skulls, sand will run through the foramina and fissures, and the grains of beans, wheat and rice are not spherical; and with peas it requires great care to measure the cubic capacity of a skull fairly. My method has been to *fill* a skull with dry peas, and then *weigh* the peas—in ounces avoirdupois: the "cubic volume" of an ounce of peas, multiplied by the number of ounces of peas that will go into a given skull, will give the cubic capacity of said skull.

In measuring *skulls* and *heads*, I have made use of the following method—namely: Each mastoid process is made a center of departure; and the point assumed is at the middle of the surface of the mastoid process, just back of the external meatus auditorius, ordinarily from half an inch to an inch above the mastoid extremity. This point is located nearly in a line with the base of the cerebrum: but it falls somewhat below the insertion of the tentorium: so that some of the cerebellum may rise above this *center point*, and some of the middle cerebral lobe may fall below a line going from it to the supra-orbital ridge. This point is a mark that can be found at all times.

The measurements of skulls and heads are made in the following directions from one mastoid center point to the other:

(1) An *anterior arch* just above the supra-orbital ridge.

(2) A *frontal arch* over the frontal eminences.

(3) A *middle arch* nearly over the coronal suture. In better-developed skulls and heads, the coronal suture is further forward: in less developed skulls and heads the coronal suture is further backward.

(4) A *superior arch*, nearly over the vertex, and about parallel with the axis of the foramen magnum.

(5) A *posterior arch* over the occipital protuberance, nearly on a line with the insertion of the tentorium. *These are the inter-mastoid arches.*

Also determine—

(6) A diametrical *base-line* from one mastoid point to the other.

(7) The *greatest transverse diameter.*

(8) The *greatest antero-posterior diameter*—leaving out the frontal sinuses.

(9) The *greatest antero-posterior circumference*—leaving out the frontal sinuses, and measuring somewhat above the occipital protuberance.

(10) The *masto-frontal angle, which is included between the planes of the anterior and superior arches.*

And in skulls:

(11) The capacity in cubic inches, and the weight in ounces avoirdupois.

The following table contains the dimensions of 29 skulls:

TABLE NO. 1.

Containing 21 Caucasian, 3 North American Indian, 1 Ancient Egyptian, 1 New Zealander, and 3 Ancient Peruvian, skulls. The dimensions are given in linear and cubic inches, and in degrees ; the weight in ounces avoirdupois.

No.	Base-line.	Transverse Diameter.	Antero post Diameter.	Circumference.	Anterior Arch.	Frontal Arch.	Middle Arch.	Superior Arch.	Posterior Arch.	Weight. Oz. Av.	Internal Volume.	Masto front-al Angle
1	4·	5·25	6.875	19.25	11.	12.	12.50	13·	7·5	9·5	65.96	71°
2	5·25	5·625	7·75	21.5	13·5	14·	14·	13·75	7·75	23·75	79·29	76°
3	4·5	5·375	7·	19.5	12.	12.75	13·	12.5	7·625	19.	63.81	76°
4	5·	5·5	7·25	20.5	12.5	13·	13·25	13·	7·75	20.25	77·39	75°
5	5·25	5·875	7·625	21.75	13·5	14·5	14·	14·	8.	21.625	92.15	75
6	5·	5·75	7·75	21.25	13·5	14·5	14·	13·75	8.25	22.25	91.44	79
7	4·75	5·75	7·25	20.5	12.25	13·25	13·5	13·75	7·75	17·	83·34	78
8	5·	5·875	7·	20.25	13·	14·375	15·	14·25	7·25	24.625	81·51	74°
9	4·25	5·5	7·	20.	12.5	13·25	13·5	12.75	7·25	18.5	73·81	70°
10	5·	5·625	7·25	20.75	13·	14·	13·5	13·	7·375	21.5	81.91	72
11	4·75	5·625	6.625	19·75	12.25	13·25	13·75	13·5	7·25	22.5	71·73	76
12	5·	5·75	6.875	20.	12.25	13.125	13·25	13·25	7·5	17.	73·10	79
13	4·75	5·5	7·	19.875	12.	12.75	13·	13·	7,625	23·75	71.49	76°
14	4·875	5·5	7·125	20.125	13·	13·375	13·25	13·	8.	24.25	72.86	73°
15	4·75	5·375	7·	20.	12.125	12.75	12.625	12.625	8.	18.375	72·39	72
16	4·375	5·5	7·	20.	12.	13·375	13·5	13·375	7·25	15·5	81.43	75
17	5·25	5·875	6.75	20.	12.5	13·5	13·75	13·	7·25	17·5	73·81	73°
18	4.875	5·625	7·25	20.5	12.75	13·5	13·75	13·5	8.5	22.	75·24	77
19	5·	5·5	7.875	22.	14·	14·75	14·5	13·5	8.	23·5	84·77	72
20	5·	5·5	7·5	21.	12.5	13·5	13·5	13·	8.	20.125	85·48	73
21	5·25	5·75	7·125	21.	13·	13·75	13·75	13·	8.	13·25	84·77	75°
22	5·375	5·625	7·	20.	13·	14·	14·	14·	8.	24·75	84·77	62
23	5·	6.25	5·75	19.	12.	12.5	13·5	13.625	7·	15·	71·59	70
24	5·375	6.625	7,5	21.5	14.25	14·5	14·	13·5	8.25	34·25	81.81	67°
25	5·	5·625	6.625	20.	12.25	13·25	13·5	13·25	7·	17·5	70.48	67
26	5·25	5·75	7·25	20.75	12.75	14.125	14·375	14.125	8.			67°
27											83.00	
28											73·00	
29											69.00	

The following figures were photographed on wood, engraved, and then electrotyped, great care being taken to make them exact copies of the original skulls.

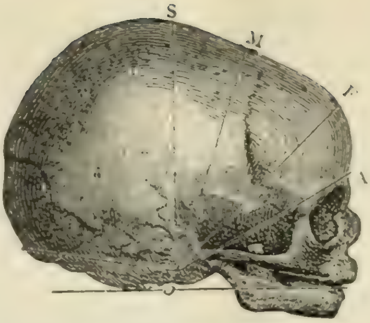


FIG. 1.

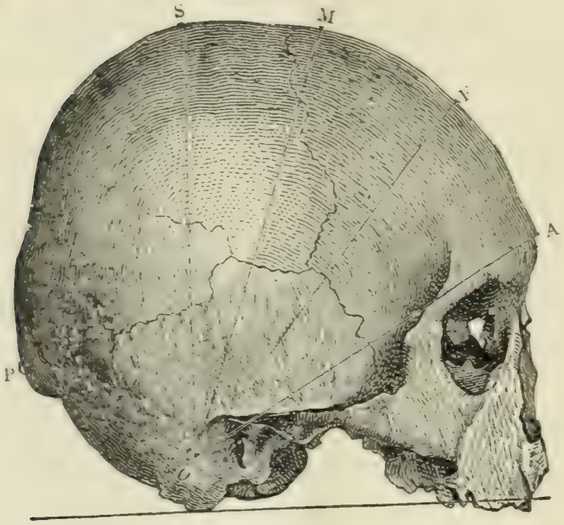


FIG. 2.

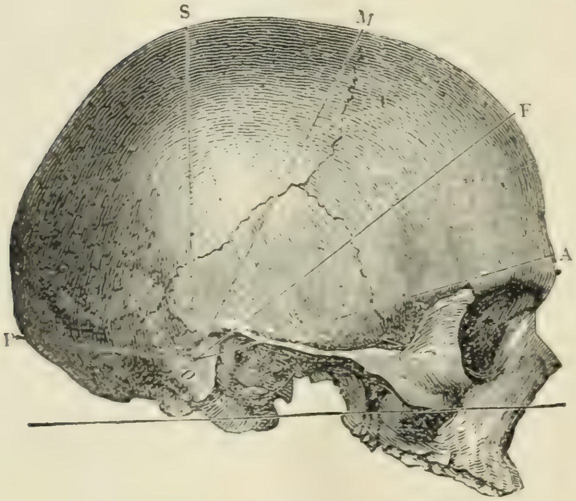


FIG. 3.

EXPLANATION OF PLATE.

FIG. 1. Skull of an infant at birth—full period, No. 2 of Table No. 13.
FIG. 2. Skull of an Indian, No. 22 of Table No. 1.
FIG. 3. Skull No. 21 of Table No. 1. The property of the author.

A O = Right half of anterior arch.
F O = Right half of frontal arch.
M O = Right half of middle arch.
S O = Right half of superior arch.
P O = Right half of posterior arch.
O = Mastoid center-point.
S O A = Masto-frontal angle.

These skulls, from No. 1 to No. 21 inclusive, belong to the Caucasian race. The age at which the owners of these skulls died is unknown. One of them appears to be the skull of a youth. They are such skulls as are found in a college museum, and no doubt came from the uneducated. They are all in a good state of preservation. The least, the greatest and the average dimensions of these 21 skulls are noted in the following table :

TABLE NO. 2.

Containing the least, the greatest and the average dimensions of 21 Caucasian skulls, and the difference between the least and the greatest dimensions.

Dimensions.	Least.	Greatest.	Average.
Base-line	4. inches.	5.25 inches. 4. "	4.843 inches.
Difference		1.25 inches.	
Transverse Diameter.	5.25 inches.	5.875 inches. 5.25 "	5.6 inches.
Difference.		0.625 inches.	
Antero-post. Diam'r.	6.625 inches.	7.875 inches. 6.625 "	7.184 inches.
Difference.		1.25 inches.	
Circumference.	19.25 inches.	22. inches. 19.25 "	20.43 inches.
Difference		2.75 inches.	
Anterior Arch.	11. inches.	14. inches. 11. "	16.625 inches.
Difference		3. inches.	

TABLE No. 2.—CONTINUED.

Dimensions.	Least.	Greatest.	Average.
Frontal Arch........	12. inches.	14.75 inches. 12. "	13.488 inches.
Difference..........		2.75 inches.	
Middle Arch........	12.5 inches.	15. inches. 12.5 "	13.565 inches.
Difference..........		2.5 inches.	
Superior Arch.......	12.5 inches.	14.25 inches. 12.5 "	13.28 inches.
Difference..........		1.75 inches.	
Posterior Arch......	7.25 inches.	8.5 inches. 7.25 "	7.7 inches.
Difference........		1.25 inches.	
Weight	9.5 ounces.	24.75 ounces. 9.5 "	19.613 ounces.
Difference..........		15.25 ounces.	
Volume............	63.81 cub. inches.	92 15 cub. inches. 63.81 " "	77.984 cub. in's.
Difference..........		28.34 cub. inches.	
Masto-frontal Angle..	71.°	79.° 71.°	75.5°
Difference..........		8.°	

The following conclusions may be drawn from Table No. 2:

1. The base-line and the antero-posterior diameter vary equally—that is, 1.25 inches.

2. The transverse diameter varies one-half as much as the base-line—that is 0.625 of an inch.

3. The circumference varies a little more than twice as much as the base-line—that is, 2.75 inches.

4. As to the inter-mastoid arches: *the anterior arch varies most, the posterior arch varies least, and the variation of the inter-mastoid arches diminishes from before backward.*

5. The weight of the heaviest skull is more than 2.5 times as much as the weight of the lightest.

6. Take two skulls of equal size and similar form: the heaviest would have the least cubic capacity.

7. The cubic capacity varies as much as 28.34 cubic inches. The ratio is as 125 to 182—a usual variation in the weight of the human body; and the weight of the brain ordinarily varies as the weight of the body varies. Hence, the difference in the volume of the brain may be partly accounted for by the difference in the size of the body.

8. Other things being equal, *it may be stated that the masto-frontal angle varies as the size of the anterior cerebral lobes varies.* According to Table No. 1, the *size* of the *masto-frontal angle* has no *direct* dependence on the weight of the skull or its cubic capacity; but the masto-frontal angle *seems* to be connected with the development and growth of the anterior cerebral lobes.

On the frontal bone of skull No. 22 is written the following memorandum—namely: "Skull of an Indian from a saltpetre cave, Kentucky; supposed to have been of a race now extinct, their relics differing from the present proprietors of the soil." Subscribed is the following name, as nearly as it can be deciphered: "B. Farlan, M. D." On the squamous portion of the right temporal bone is another memorandum, namely: "Golconda, Kenty, pre[sented] by Maj. Long, 1826, Indian from a saltpetre cave." I believe this to be the skull of a *mound-builder.* How it came to be in the saltpetre cave is unknown.

No. 23 is the skull of a Flat-head Indian. It is compressed and shortened in the antero-posterior diameter; the transverse diameter is comparatively large; the masto-frontal angle appears to have been *enlarged*—perhaps by *external pressure ;* the weight is below the average, and the cubic capacity is *small*—but probably increased by the deformity.

No. 24 is the skull of a New Zealander. The soft parts are dried, and show tattooing. The base of the skull is partly gone, while the lower jaw remains. This skull weighs 34.25 ounces. The cubic capacity is an approximation, but perhaps nearly correct.

No. 25 is the skull of a mummy. It is said to be from a branch of the Caucasian race : and as it belongs to earlier times, and ranks somewhat low in development, it has been placed with the Indian skulls. It is no doubt a fair specimen of the ordinary ancient Egyptian cranium. These 25 skulls are the property of the Long Island College Hospital.

No. 26 is the skull of a Seminole Indian, who was killed during the Florida war. The fatal bullet is still retained in the cranial wall. Judging from the linear dimensions, it has a large cubic capacity. I did not measure its cubic capacity "for fear" of dislodging the historic bullet. It belongs to J. S. Thorne, M. D.

Nos. 27, 28 and 29 are the skulls of ancient Peruvians. They were found in Peru, beyond Lima, near Ancon, under 60 feet deep of sand, where they had been covered for centuries. I have only the figures for the cubic capacities of these three skulls, and I very much regret that I did not make more complete measurements. However, judging from authentic profiles of ancient Peruvian skulls, *the masto-frontal angle must have been not far from* 60°. These three skulls are the property of Harvard University.

Let us denominate the skulls of Table No. 1—from No. 22 to No. 29 inclusive—as *mixed*. They are of lower order than the other skulls of the same table. The least, the greatest and the average dimensions of these mixed skulls are noted in the following table :

TABLE NO. 3.

Containing, in part, the least, the greatest and the average dimensions of 8 mixed skulls, and the difference between the least and the greatest dimensions. The deficiencies will be seen in Table No. 1, for which due allowance must be made.

Dimensions.	Least.	Greatest.	Average.
Base-line.	5. inches.	5.375 inches. 5. "	5.2 inches.
Difference		0.375 inches.	
Transverse Diameter..	5.625 inches.	6.625 inches. 5.625 "	5.975 inches.
Difference		1. inch.	
Antero-post.. Diam'r.	5.75 inches.	7.5 inches. 5.75 "	6.825 inches.
Difference		1.75 inches.	
Circumference	19. inches.	21.5 inches. 19. "	20.25 inches.
Difference		2.5 inches.	
Anterior Arch.......	12. inches.	14.25 inches. 12. "	12.85 inches.
Difference		2.25 inches.	
Frontal Arch........	12.5 inches.	14.5 inches. 12.5 "	13.675 inches.
Difference		2. inches.	
Middle Arch........	13.5 inches.	14.375 inches. 13.5 "	13.875 inches.
Difference		00.875 inches.	
Superior Arch.......	13.25 inches.	14.125 inches. 13.25 "	13.7 inches.
Difference		00.875 inches.	

TABLE No. 3.—CONTINUED.

Dimensions.	Least.	Greatest.	Average.
Posterior Arch.......	7. inches.	8.25 inches. 7. "	7.65 inches.
Difference..........		1.25 inches.	
Cubic capacity of Nos. 22,23 and 25...	70.48 inches.	84.77 inches. 70.48 "	75.61 inches.
Difference..........		14.29 inches.	
Cubic capacity of 3 Ancient Peruvian Skulls...........	69. inches.	83. inches. 69. "	75. inches.
Difference..........		14. inches.	
Masto-frontal Angle of 5 Mixed Skulls.	62.°	70.° 62.°	66.6°
Difference..........		8.°	
Masto-frontal Angle of 8 Mixed Skulls.	60.°?	70.° 60.°	63.6°
Difference		10.°	

The following conclusions may be drawn from Table No. 3:

1. The variation in the transverse diameter is nearly three times as great as the variation in the base-line.

2. The variation in the antero-posterior diameter is nearly five times as great as the variation in the base-line.

3. The greatest variation is in the anterior arch—that is, 2.25 inches.

4. The next greatest variation is in the frontal arch—that is, 2 inches.

5. The next greatest variation is in the posterior arch—that is, 1.25 inches.

6. The variation in the circumference, minus the variation in the posterior arch, gives a result equal 1.25 inches.

7. The variation in the middle and superior arches are equal and least—that is, 00.875 of an inch.

8. The variation in the cubic capacity of the skulls of two North American Indians and one ancient Egyptian is about equal to the variation in the cubic capacity of three ancient Peruvian skulls.

9. The average cubic capacity of the three ancient Peruvian skulls is equal to the average obtained by more numerous measurements.

10. *The masto-frontal angle varies 8° or 10°. It appears to be a distinguishing mark, the average being less than the average of the more advanced races.*

It must not be forgotten that these conclusions are drawn from a few examples; yet they afford certain indications, which will be noted further on.

The skulls of Table No. 1 may be divided into two classes—namely: (1) *Caucasian*, and (2) *Mixed*. A comparison of these two classes of skulls is noted in the subjoined table:

TABLE NO. 4.

Containing the average dimensions of 21 Caucasian and 8 mixed skulls, and noting the difference.

Dimensions.	Caucasian.	Mixed.	Difference.
Base-line...........	4.843 inches.	5.2 inches.	0.357 inches.
Transverse Diameter.	5.6 "	5.975 "	0.375 "
Antero-post. Diam'r.	7.184 "	6.825 "	0.359 "
Circumference	20.43 "	20.25 "	00.18 "
Anterior Arch.......	12.625 "	12.85 "	00.225 "
Frontal Arch........	13.488 "	13.675 "	00.187 "
Middle Arch.........	13.565 "	13.875 "	00.31 "
Superior Arch	13.28 "	13.7 "	00.42 "
Posterior Arch......	7.7 "	7.65 "	0.05 "
Volume	77.984 cubic in.	75.305 cubic in.	2.679 cubic in.
Masto-frontal Angle..	75.5°	66.6°	8.9
		8 Mixed.	
Masto-frontal Angle.	75.5	63.6°	11.9
	Greatest.	Least.	
Masto-frontal Angle..	79.°	62.°	17.°
	Least.	Greatest.	
Masto-frontal Angle..	71.	70.	1.°

A skull going from the hospital or the poor-house to the College Museum must be of low order; a skull of high order may have fallen to low estate; but there is no reason to suppose that any of the 21 Caucasian skulls measured and above tabulated came from the educated. Hence, we are comparing the skulls of a low order of the civilized with the skulls of savages. To be sure, the ancient Egyptians and the ancient Peruvians had made remarkable progress in civilization; and it is very probable that the mixed skulls came from the better classes of the races to which they belong. The following conclusions may be drawn from Table No. 4:

1. The base-line and the transverse diameter of the mixed skulls are greater than the corresponding dimensions of the Caucasian skulls—the average excess is 0.366 of an inch.

2. The antero-posterior diameter of the Caucasian skulls is greater than the corresponding dimension of the mixed skulls—the excess is 0.359 of an inch.

3. The circumference of the Caucasian skulls is greater than the corresponding dimension of the mixed skulls—the excess is 00.18 of an inch.

4. *The four large inter-mastoid arches are greater in the mixed skulls than in the Caucasian skulls*—the average excess is 00.285 of an inch.

5. The posterior arch of the Caucasian skulls is greater than that of the mixed skulls—the excess is 0.05 of an inch.

6. *The cubic capacity of the Caucasian skulls is greater than the cubic capacity of the mixed skulls*—the excess is 2.679 cubic inches.

7. There is but little difference in the average weight of the skulls of the two classes—one of the lightest belongs to an Indian.

8. *The masto-frontal angle of the Caucasian skulls is greater than that of the mixed skulls—the excess is about* 9^c. The three ancient Peruvian skulls are not included in this conclusion; if they were, the difference would be greater.

9. *The least masto-frontal angle of the Caucasian skulls is greater than the greatest of the mixed skulls.*

10. *The greater cubic capacity of the Caucasian skulls is due—partly, at least—to the greater masto-frontal angle—that is, the anterior lobes of the lower order of Caucasian brain are larger and more fully developed than the corresponding lobes of savages; and the middle lobes of the cerebra of savages are larger than the corresponding lobes of civilized man; and the posterior cerebral lobes of civilized man are greater than the corresponding lobes of savages.* Observations on the brains of the Indians of America confirm these statements. The fact is, that the cerebrum has developed forward and downward—in front. And the examination of the brain and the measurement of the skull give similar results in regard to the volume of the different parts of the cerebrum.

Let us contrast the dimensions of skulls Nos. 19, 21 and 22 of Table No. 1 in the following table:

TABLE NO. 5.

Containing the contrasted dimensions of Skulls Nos. 19, 21 and 22 of Table No 1:

Dimensions.	No. 19.	No. 21.	No. 22.
Base-line...........	5· inches.	5·25 inches.	5·375 inches.
Transverse Diameter.	5·5 "	5·75 "	5·625 "
Antero-post. Diam'r.	7·875 "	7·125 "	7· "
Circumference	22. "	21. "	20. "
Anterior Arch.......	14. "	13 "	13. "
Frontal Arch	14·75 "	13·75 "	14. "
Middle Arch........	14·5 "	13·75 "	14. "
Superior Arch......	13·5 "	13. "	14. "
Posterior Arch.	8. "	8. "	8. "
Weight ...	23·5 ounces.	13·25 ounces.	24·75 ounces.
Cubic capacity......	84.77 cubic inches.	84.77 cubic inches.	84 77 cub. inches.
Masto-frontal Angle.	72.	75·	62.

From Table No. 5 may be drawn the following conclusions—namely:

1. *The three skulls have the same cubic capacity.*

2. The three skulls have the same posterior arch.

3. The average values of the four greater inter-mastoid arches are, respectively, 14.187 inches, 13.375 inches and 13.75 inches—a variation in part due to a difference in the thickness of the skull, indicated by the difference in weight, and in part due to the smaller transverse and the greater antero-posterior and vertical dimensions. The lateral compression, as it were, of skull No. 19 accounts for the cubic capacity being the same as Nos. 21 and 22, with greater inter-mastoid arches. A hollow sphere of gold filled with water, being compressed, will diminish in cubic capacity till the particles of water are forced through the pores to the outside.

4. The three skulls show that the circumference does not truly indicate the cubic capacity. A difference of two linear inches in the circumference of a skull or of a head, may not change its cubic capacity. Hence a skull whose circumference is × inches may contain as much brain as a skull whose circumference is ×+2 inches.

5. A fact of great importance, relating to cerebral development and growth, and connected with the masto-frontal angle, appears, when a *base-plane* is drawn through and from the supra-orbital ridge to and through the occipital protuberance, in a line with the posterior insertion of the tentorium. Skulls Nos. 21 and 22 differ most in the masto-

frontal angle. Let us compare them : The base-plane of No. 21 rises about three-eighths of an inch above the mastoid center point; the base-plane of No. 22 rises about seven-eighths of an inch above the mastoid center point, and *the difference is one-half inch.* Indeed, it can be seen, by simple inspection, that this Caucasian skull has the larger masto-frontal angle, and that this Indian skull has the greater vertical depth.

6. *The masto-frontal angle appears to be a distinguishing mark.*

—From Proceedings of the Medical Society of the County of Kings.

(*To be continued.*)

TRANSACTIONS

OF THE

ODONTOLOGICAL SOCIETY,

OF GREAT BRITAIN.

ORDINARY MONTHLY MEETING, March 3d, 1879.

EDWIN SAUNDERS, Esq., President in the Chair.

The Minutes of the previous meeting having been read and confirmed,

Messrs. W. H. Margetson, of Dewsbury; Percy May of Euston Square, London, and Walter Campbell, of Dundee, signed the obligation book, and were formerly admitted to membership by the President.

The following gentlemen were proposed for election :

Messrs. Edmund Keen, King's Parade, Cambridge, and J. R. Goepel, of Mount Pleasant, Liverpool.

The President announced that Mr. Holford had sent a specimen of geminated teeth to the Museum, and that Mr. Percy May had presented the following books to the Library, viz. : Ringer's *Handbook of Therapeutics ;* Erichsen's *Surgery* (2 vols.), and *Berkeley Hill on Bandaging.*

Mr. HUTCHINSON said there had been a notice on the cover of the "Transactions" for two months past that he intended to bring the subject of gold caps for guttapercha fillings under the notice of the Society. He knew that the practice was not altogether a new one, that it had already been adopted to some extent by the profession, but he was not aware that it had ever been actually brought before the Society; at all events, he could find no mention of it in the "Transactions," and he had found the plan so useful that he thought it deserved some more public recognition than it had yet received. His practice was as follows: After filling the cavity with guttapercha in the ordinary way, he took a piece of thick gold, cut it to shape, soldered a small piece of spiral spring to the under surface of the cap, and, after heating this in the spiral lamp, he pushed it into the centre of the guttapercha. This method of using a piece of spiral spring as a holdfast, he considered both a novelty and improvement. It was well known that guttapercha was the most suitable filling that could be used for some cavities, especially when they were situated near the cervical wall, but it had the great disadvantage of not being able to withstand the effects of attrition. The effect of adding the gold surface was to make the filling last at least three times as long as it would have done without it. By treating osteo-fillings in this manner, a very satisfactory stopping could be made in a very short time. He had also made very good bridge stoppings in the same way, *e. g.*, between a bicuspid and a molar, to prevent food lodging between two fillings and pressing on the gum; and, although this plan of bridging fillings was usually condemned, he believed it to be useful in some few cases. In illustration of his remarks, Mr. Hutchinson handed round some teeth stopped with a gold surface over guttapercha.

Mr. CLAUDE ROGERS said he had occasionally made gold caps to articulate on to stumps which had decayed below the gum, and the result had generally been very satisfactory. A case of this sort had recently occurred to him, and he was glad to be able to submit his work for the inspection of members. The tooth was a lower first molar, which had decayed below the gum on three sides, the buccal wall alone remaining. A model having been taken, the tooth was restored in wax so as to articulate with the bite; from this wedges were made, and a cap of pure gold was struck up and fitted so as just to overlap the margins of the root everywhere. A ring was soldered into the inside of the cap for the purpose of holding it on to the soft stopping. Two screws were now placed, one in each root, so as to give extra support. Matrices having been placed next the adjoining teeth, Hill's stopping was carefully packed on to the root and around the pins up to the full natural contour of the tooth. The matrices were then removed, the gold cap was thoroughly heated and allowed to melt its way into the Hill stopping, aided by considerable pressure, until it was thoroughly home to the bite. The gold was then malletted and burnished round the margins and finished off as an ordinary gold filling. A very perfect articulation was thus obtained. The patient was Mr. David Hepburn, who was then present, and had kindly consented to remain "on view" after the meeting.

Mr. STEELE said he had been in the habit for years past, of capping soft stoppings with gold, and had obtained very satisfactory results. But he had met with one difficulty, and he should be glad to hear whether Mr. Hutchinson had also experienced and been able to overcome it—how did he manage to make the gold cap fit exactly to the shape of the cavity? This was an important point, for the more accurately you could fit the gold cap so much the more perfect and lasting was the result.

Mr. ASHLEY BARRETT remarked that he could not think it was ever desirable to make a stopping common to two teeth. The plan was open to many objections, one of the most serious being that the mobility of the teeth, slight though it was, was sufficient sooner or later to cause the loosing of such a stopping and then all the labor was lost.

Mr. RYMER said another objection to this plan was that if one tooth was cured, but the other became painful, and had to be extracted, the bridge stopping would cause a good deal of difficulty.

The President said he could cordially agree with the first part of Mr. Hutchinson's communication. He had found guttapercha a most useful filling in certain cases; nothing would answer so well for cavities below the neck, and and he thought Mr. Hutchinson's plan of adding a gold surface most excellent, but with his concluding remarks he could not agree. He could not think it wise to make one stopping serve for two teeth.

Mr. HEPBURN said there was a very great difference in the treatment which Mr. Hutchinson had advocated and that which had been adopted by Mr. Rogers in his own case. In Mr. Hutchinson's specimens the guttapercha showed beyond the edge of the gold, whilst in his case the gold covered the gutta percha completely. Mr. Rogers had made a perfect gold cap, malletted to fit exactly to the margin of the stump, so that there was nowhere any soft stopping which could be worn down by attrition.

Mr. Charles Tomes remarked that though theoretically it might have been thought advisable to fit the gold cap as accurately as possible to the shape of the cavity, practically this did not appear to be of much importance. He had found by experience that if the guttapercha was fairly covered, so that only a small extent was exposed, it did not get worn down appreciably. Between three and four years ago he had put a mushroom-like patch of gold on to a cavity on the masticating surface of a molar, which he had filled with guttapercha. Now, it happened that only half of this surface was bitten upon, the rest of it having no antagonist in the upper jaw. Yet, even now, he could not detect that the gutta percha had been worn away more on the one side than on the other of the patch of gold.

Dr. Field said that in following the plan which Mr. Hutchinson had spoken of that evening, it was certainly not necessary to make the gold cap fit very accurately. He felt bound to add that he objected strongly to bridging, and thought it bad practice. The gum was sure to become inflamed, and a purulent discharge was set up which was very disagreeable to the patient. He then proceeded to describe a method of capping stumps which he had occasionally practised. He took several thicknesses of No. 120 rolled gold, welded them into a band, and applied this in the form of a ring to the top of the root, so that it projected above the root about two-thirds the original height of the crown. Gold screws were then inserted into the root or roots of sufficient length to support the gold to be added as a contour. The cavity formed by the ring was filled with osteo and afforded a solid foundation on which to restore the contour of the tooth, bicuspid, or molar, whilst the screws securely attached the whole to the root. By this means an otherwise useless root might be restored to usefulness, and the necessity for an artificial plate avoided.

Mr. Steele said he wished to draw the attention of members to the fact, that in May next, an exhibition of cutlery would be opened at the Cutlers' Hall, in London, in which there would be a section set apart for instruments used in surgery and in dental surgery. He hoped that members who might have in their possession instruments which were curious or interesting, would send them for exhibition; he should be very pleased to take charge of anything so lent. The Cutlers' Company was taking great pains to make the show a success, and he felt assured that any contributions would be thankfully received and taken due care of.

The President asked whether Mr. Steele made this application to the members individually, or whether he wished to suggest that the Society in its corporate capacity should take part in the exhibition. The collection of dental instruments which was shown at the International Exhibition, in 1862, was selected and arranged by a committee appointed by the Society, and the result was in all respects satisfactory. Would Mr. Steele wish the same course to be pursued in this instance.

Mr. STEELE said he should be very glad if the Council would consent to some such arrangement. A selection from the instruments in the Society's Museum would be specially acceptable.

Mr. RYMER said that members need not be in doubt as to the success of the exhibition. The fact that it was promoted by the Cutlers' Company, and the good names which appeared in the management, were sufficient guarantees that it would be a large and intereresting show. He hoped that the Society would aid in so laudable an object as the promotion of technical education in England, and he would suggest that a small committee be appointed to receive contributions from members, and to select specimens suitable for exhibition.

The President said that the matter would be carefully considered by the Council.

The Secretary then read the following communication from Mr. E. Monteith Tod, of Brighton :

"Mr. President and Gentlemen,—With your kind permission I will bring before the Society a small matter which seems to me worthy of investigation.

"I removed a very strong first lower molar tooth, jammed between the second bicuspid and second molar, from the mouth of a gentleman of middle life, a few days ago. He had been suffering from neuralgia for some time, which has since taken its departure.

"It had been previously filled with amalgam by another practitioner, and the filling had failed.

"The tooth extracted, I tried to split it in halves, but my excising forceps only succeeded in splitting off a large slice of tooth substance from the distal portion of the tooth, thus laying bare to my view the internal structure of the tooth, without, however, encroaching on the pulp cavity.

"Whilst tracing out the enamel prisms and the yellow mass of dentine, my attention was suddenly arrested by observing, just where in a young tooth would be found *the horns of the pulp*, a pink striated portion of dentine, in form closely resembling the horn of the pulp itself.

"Thinking to pursue my investigation yet further, I proceeded to crush the tooth again, for I could not *split* it easily, and I found the main pulp-chamber filled with a mass of secondary dentine, indistinguishable with the naked eye from the dentine itself. Indeed, only in the pulp-chamber of the two roots was there any portion which was *not* calcified. The cavity, which had been filled previously, was apparently a large shallow cavity in the mesial surface down to the gum. Now, here we seem to have a tooth, the subject of nerve-irritation, almost entirely calcified, and yet at a point not far distant from the enamel the dentinal tubuli have a peculiarly marked pinky appearance, as if, not wholly calcified and somewhat transparent, they had been injected with a pale pink fluid: and yet, below and above this portion of pinkish dentine, and effectually shutting it in, is the yellow mass of dentine filling up the entire crown of the tooth as it underlies the enamel.

"I presume the theory of the dentine being in any way vascular could hardly be entertained, or that the odonto blast cells were only partially calcified, for this pink portion of dentine seemed only to be towards the crown of the tooth, and was on all sides covered in by dentine of a typical character.

"It may be worthy of note that the bicuspid and molar had been resisting pressure *for years*, and indeed the bicuspid had not been able to force its way up, and was only a little above the gum, and its crown turned towards and pressing *hard* against the mesial surface of the tooth under consideration."

Mr. Weiss remarked that calcification of the pulp was not always accompanied by pain. Of this he had the following proof: he had removed a tooth from the mouth of a gentleman 92 years of age; on splitting it he found the pulp-cavity completely filled with secondary dentine. But the patient had suffered no pain whatever; the tooth had gradually become loose in its socket, and would in a short time have dropped out had he not extracted it.

Mr. Oakley Coles asked whether Mr. Todd's patient had suffered from a recent attack of illness? The most marked examples of pink dentine which were met with occurred generally in the cases of patients who had recently suffered from typhoid fever.

of facial neuralgia, which was not relieved by quinine, and yet could not

Mr. Hutchinson said that all the additional information he could give about Mr. Tod's patient was that he had suffered for some time from severe attacks be referred to any particular tooth. The only grounds for extracting this tooth were the presence of slight redness of the gum round it and some excess of sensibility when it was struck. After its removal evidence of a mild form of periostitis about the roots was found.

Mr. COLEMAN said it had occurred to him, and no doubt to others also, on several occasions when excavating a cavity, to come upon a portion of dentine which presented the peculiar pink, semi-transparent aspect which Mr. Tod had described. His first impression was, that he had got into very close proximity to the pulp-cavity, until careful examination had satisfied him that this was not the case. His own opinion was that this peculiar staining of the dentine was due to, or indicated the presence of, an early stage of necrosis. With regard to the fact that calcification of the pulp was frequently a cause of neuralgia, he could supplement Mr. Tod's case with a very similar one which had occurred in the practice of his friend Mr. Ewbank. A patient came to Mr. Ewbank complaining of severe pain. One molar was found to be carious, and was carefully stopped. The pain still continuing, the stopping was removed, but no cause for the pain could be found. At the urgent request of the patient the tooth was removed ; on splitting it the pulp-cavity was found to be occupied by a free mass of secondary dentine,—a perfect cast of the cavity. In this instance there was no sign of periostitis, and no increased sensibility on percussion ; the tooth was, however, somewhat sensitive to heat and cold ; this was the only guide by which the offending tooth could be detected. Then diagnosis of such cases was very difficult : the dentist was forced to rely in great part on the judgment of his patient, but it was very important that he should himself take all possible precautions to avoid extracting the wrong tooth.

The PRESIDENT remarked that the earliest published notice of pink discoloration of the dentine with which he was acquainted occurred in Bell's work. It was thought by him to be due to inflammation, and was mentioned as a proof of the vascularity of dentine.

Mr. WALTER CAMPBELL, of Dundee, exhibited some dental splints, described his method of applying them, and related particulars of two bad cases of fracture of the lower jaw, which had been treated by this means alone with very satisfactory results.

The first case was that of a gentleman about fifty-five years of age, who had fractured his lower jaw through the symphisis six months before he came under Mr. Campbell's treatment, but the fracture was still ununited. The patient, who occupied a good social position, strongly objected to wear any bandage, or any apparatus which would show externally. Mr. Campbell therefore provided him with an accurately-fitting dental splint ;

this was worn constantly for eighteen months and then dispensed with, firm union having taken place.

In the second case, the patient, a man aged thirty, was admitted, under Dr. Campbell's care, into the infirmary, who requested Mr. Walter Campbell's assistance. The jaw was broken close to the left canine, the larger fragment being drawn backwards towards the tongue by muscular action. This, of course, made the fitting of the splint more troublesome than in the other case, but by the exercise of some amount of force, this was satisfactorily accomplished. The man was made an out-patient at the end of three weeks, and at the end of two months the splint was removed, very good and firm union having been obtained.

The upper jaw of the first patient was edentulous, and in the second case the teeth in the upper jaw on the left side were knocked out at the time of the accident, so that in neither case were there any upper teeth to antagonize with the lower, and to act as a guide in adjusting the position of the divided model. The chief point of interest was the method adopted to get the model of the fractured jaw to correspond with the normal position of the teeth previous to the fracture. This was effected in the following manner. Mr. Campbell first took an impression of the broken jaw in the usual way; from this a plaster model was made. This was cut across at the line of fracture, and a metal plate made for each half of the model. These two plates were put in their proper places in the mouth, and the two portions of the jaw were then brought closely into apposition and held there. An assistant now placed some plastic stent round the junction of the plates, and the parts were kept in the same position until this was hard. The whole was then removed from the mouth, and the two halves of the model were inserted into the plates and fixed in plaster. The exact normal position of the jaw having been thus obtained, the plate which forms the splint was struck up over the brass plates, thus allowing space for a thin layer of guttapercha; this was applied to the mouth in the usual way, and the plates held firmly in position until it had quite set.

Mr. Weiss said he had obtained such satisfactory results from the use of the ordinary iron wire splint, that he had never found it necessary to use any other apparatus. The last patient he had treated by this means was a man whose jaw had been broken in two places by a kick from a a horse. On his next visit to the hospital, two days after the accident, he found the patient eating his dinner without any great amount of discomfort, and he was made an out-patient three weeks afterwards.

Mr. TOMES mentioned the case of a gentleman who was attempting to ring two church bells at the same time. One of the ropes slipped from his hold, and on descending again the noose caught under his upper front teeth, lifting him up to the belfry ceiling, and then flinging him with great force across the loft. The result was a fracture of the upper jaw, between the canine and bicuspid on one side, and between the lateral and canine on the other. The intervening fragment was displaced almost at right angles to the face, and great force was required to replace it. Hammond's wire splint was used, and the fracture united without much trouble, but all the teeth attached to the displaced fragment had remained completely devoid of sensibility ; there had been no abscesses, and they appeared otherwise normal. The question was, were these teeth alive? He should be glad if Mr. Moon would tell him whether he had found the nutrition of the teeth interfered with after severe fractures of the jaw.

Mr. MOON answered that after treating a large number of cases of badly fractured jaws he han found that the teeth retained their vitality in a surprising manner. He had never yet met with a case of sphacelus of the dental pulp subsequent to fracture of the jaw.

Mr. Coleman remarked that the vitality of the teeth would depend more on its vascular than on its nervous connections, and loss of sensisibility would not be necessarily accompanied by deficient vascular supply. The latter was quickly made good in such cases by anastomotic channels, whilst sensation was not regained until a slow process of repair had taken place in the original nerve filaments. He should not despair of the ultimate restoration of sensibility until a very considerable time had elapsed.

Mr. Sewill mentioned a case he had seen at St. Mary's Hospital, in which sensation had been restored many months after the accident by means of the persevering use of galvanism.

Mr. Henry showed a case in which he had introduced a novel arrangement. He had to fit a denture to the lower jaw, and wished to avoid the use of springs, if possible. Unfortunately, the alveolar process was very flat ; there was no ridge to afford an attachment, but by prolonging the inner edge of the denture so as to grip the mylo-hyoid ridge, he was able to obtain a sufficiently secure attachment. The denture had now been in use for twelve months, and his patient was quite satisfied with it.

Mr. Charles Tomes then proceeded to read an abstract of Dr. Magitot's paper.

An Epitome of Dr. Magitot's Paper upon the Replantation of Teeth (*Bull. et Mém. de la Soc. de Chirurgie.* Février, 1879). Communicated by CHARLES S. TOMES M. A., F. R. S.

Although the subject of replantation of teeth is by no means new, and has been on many occasions brought before the notice of this Society, it has been prominently called to mind of late by the appearance of paragraphs in public newspapers, these paragraphs owing their origin to a short memoir communicated to the Académie des Sciences (*Comptes Rendus*, Février, 1879), which short memoir is but an abstract of the more important paper by Dr. Magitot, to the contents of which I propose to call your attention.

The paper does not touch upon transplantation of teeth, but solely the replantation proper, after the removal of any portion of root or periosteum that is much diseased. It derives its great importance from the minute accuracy with which the cases are detailed, from their number, and from the severity of the complications with which many were accompanied : in these respects it is by far the most valuable and conclusive contribution that has been made to the subject.

Before going further I shall explain my own position in the matter. I have very small personal experience of the operation, I have seen but few cases, and I should be very sorry to appear desirous of associating my name with a matter at which I have not worked. It is, however, my privilege to be acquainted with Dr. Magitot, and, at the suggestion of our Secretary, I wrote to ask him if he would be so kind as to furnish us with some account of his experiments to serve as our text for discussion to-night. My appeal on this, as on previous occasions, met with a generous response in the form of the published paper in the *Comptes Rendus*, and the proofs of this longer paper, which is not as yet published anywhere, but will appear in the "Bulletins et Mémoires de la Société de Chirurgie," together with a letter authorizing me to make what use of them I pleased.

The very short time at my disposal has rendered it impossible for me to do justice to my task, but it seems to me best to note especially those points in which Dr. Magitot's procedures differ from those of other writers on the subject, whilst I would recommend all who are interested to peruse the original memoir carefully for themselves.

Dr. Magitot commenced his experiments in 1875 : his cases amount to sixty-three, of which only five have been failures, but as some of these are very recent, he publishes his first fifty cases only, including all of the five failures. Six operations were performed in 1875; fourteen in 1876; eighteen in 1877; and twelve in 1878.

The indications for the operation he holds to be the existence of chronic periostitis of the apex of the root, its denudation, absorption of its surface, &c., which he terms a sort of partial mortification of the root.

The resection of this, which plays the part of irritant, which is seldom practicable without extraction, is the essential aim of the operation.

The extraction having been performed with due care, if no other lesion be detected save the alteration in the apex of the root, the tooth is to be replaced as soon as this has been excised and smoothed, and the hæmorrhage has ceased: if their be caries, the cavity is to filled before it is replaced.

He seldom found it necessary to retain the tooth in position by gutta-percha caps or the like, and the only after-treatment commonly resorted to was the laying of slips of lint, dipped in a solution of chlorate of potash, between the lip and the gum.

The existence of an open fistula he found to be so advantageous that he sometimes made one, maintaining it for some days with a seton: in some cases a platina wire was left traversing the bone from the palatine to the labial aspect for some weeks. Much stress is laid by Dr. Magitot upon the maintenance of free drainage, especially in the severer cases.

The success of the operation he holds to be wholly dependent upon the existence of a complete ring of healthy periosteum on the replanted tooth; if it has been destroyed, or is very unhealthy as far up as the neck of the tooth on any part of its circumference, he believes that it will fail always.

When it succeeds, the cure takes, on an average, ten or a dozen days: the failures occurred one on the sixth day, one on the tenth, one on the twelfth (by extraction), one after two months, one after four months (extraction).

The minimum time recorded amongst these cases, as successful, is four months; the agents of the patients range from eighteen to fifty-five, and age does not appear to have influenced the result. In fifteen cases there was perostitis, but no caries.

As I have already mentioned, many of Dr. Magitot's successful cases might have been regarded as very unfavorable, owing to the existence of complications. Thus, cases in which a fistulous opening under the chin had existed were successfully treated, as were others in which large palatine abscesses co-existed with fistulous opening on the gum anteriorly, and others in which there were sequestra. Amongst the more interesting complicated cases, I may cite one in which there was swelling in the region of the second lower molar, with incomplete anæsthesia of the corresponding lip and anterior teeth: about one-sixth of an inch was removed from each root, and the tooth successfully replanted. The anæsthesia had become notably less a fortnight afterwards, when the case was lost to view.

A lateral incisor, which had been the original cause of a palatine cyst was replanted, the cyst which was as large as a pigeon's egg, having been opened from the palate, and a drainage tube introduced; fifteen months afterwards the cyst was shrunken and solid, and the tooth firm.

As an example of the manner of securing drainage, I may cite his first recorded case.

M., æt. 30. Fistula over right upper lateral, and large palatine swelling, which was dusky and carious. It was extracted, found to have one-sixth of an inch of apex bare and rough, and the periosteum of half its length injected and thickened. The bare end was resected, but the thickened periosteum not interfered with, and the tooth replanted.

Three days afterwards, the tooth remaining very loose, and the discharge of pus very copious, a platina wire was introduced by the help of a stylet at the palatine fistula, and with much trouble brought out at the orifice on the labial aspect of the gum, its ends knotted together, and tucked away between the canine and first bicuspid, where a space happened to exist. Some general fever ensued, and some general stomatitis; but in a fortnight from the date of the first operation, the tooth was well, and remained so for six months at least, when the patient left the country.

In the case of a young lady, æt. seventeen, there existed a chronic alveolar abscess, a little swelling of the cheek, and tenderness and enlargement of the submaxillary glands. One root was considerably shortened, and the tooth replaced. A shivering fit of some severity followed the same night, sleeplessness and fever (no temperature is given), persisted for several days and nights, though the local condition was progressively ameliorating. On the fifth day the patient went into the country and returned on the tenth, in all respects well again. Four years afterwards the tooth remained firm.

Dr. Magitot will forgive me, I doubt not, if I now turn to an examination of his failures, from which oftentimes most may be learned.

The first had every promise of success, save that it was never brought down to its proper length, and ultimately had to be shortened by filing; in two months it was ejected, and we may take it as probable that perfect juxtaposition of the root and its socket had never been attained.

The second appears to have failed (in six days) from an insufficient amount of live periosteum remaining upon the root, the entire right antero-lateral face being denuded.

The third, extracted by the patient himself on account of pain, Dr. Magitot believes to have failed through there having been no patulous fistula through which discharge of long standing could drain away.

In the fourth, abscesses recurred again and again, the tooth remained long and tender, and was extracted six months afterwards.

The fifth, complicated by palatine abscess, was lost by failure to secure adequate outlet for the pus.

I have but little to add to the foregoing account of the nature of Dr. Magitot's paper. The impression left upon one's mind by a careful perusal of his cases, which are fully detailed, is, that there is hardly any case of chronic periostitis confined, or nearly so, to the apical third of the root which may not be successfully treated, and the tooth retained for some years at least; but sometimes at the cost of some little suffering, requiring no little endurance on the part of the patient. Pain, however, seems to have been often surprisingly little felt.

There si no anatomical reason whatever why perfect union of the periosteum should not take place, and doubtless it does take place, so that presumably these replanted teeth may, in the most successful cases, have as much real connection with surrounding parts as any dead tooth has. But there is an accident to which replanted teeth are liable which I do not see how we can contend against, and that is, complete absorption of the roots. I myself removed a wisdom-tooth, which had been extracted, filled, and replanted a year previously by an enterprising foreign practitioner (who claimed to be the originator of the operation), which had almost wholly lost its roots, and we have a similar specimen in the Museum.

I have had more experience of the excision of the apices of roots without extraction of the teeth; this is an operation much less formidable and more feasible than might be supposed. The hole through the alveolus in a case of chronic alveolar abscess is generally of some size, and the dilatation by slips of lint of the fistulous opening in the gum often is easy; or a single application of nitric acid or potassa c̄. calce will form a sufficient opening. With the aid of the engine and a sharp drill a small orifice will suffice for boring through and cutting off the apex of the root, and this is often followed by the happiest results. But in two cases in which I performed this operation, some three or four years ago, considerable absorption of the alveolus has ensued, and one of the teeth (a lower canine) is now bare in its whole length on its labial aspect. However, so far, it is quite firm, there is not a trace of suppuration, and it is, and always has been, quite comfortable.

With our best endeavors in the way of treatment of dead teeth, we occasionally fail in rendering them non-irritant, innocuous bodies, even where the root is single, and of some size. My own notion, and it is no more than a notion, is, that in such roots the protoplasmic material which occupies the dentinal canals and the lacunæ of the cementum has undergone some form of decomposition, and our disinfectants fail to permeate the tissues so as to render it innocuous. On some such hypothesis as this we could understand how the removal of an apex of a root, denuded of its periosteum, should make all the difference between toleration and non-toleration of its presence.

And it occurs to me as I write that the occurrence of inflammation, death, and subsequent putrefactive decomposition of a pulp which has never been exposed to the air, is worthy the attention of those who maintain that putrefactive decomposition is invariably the result of the access of germs. It is hard to see how they can have obtained admission, and it will be well worth while for any one who has the opportunity to examine with all due precaution the fluid from a dead pulp, which has certainly never been exposed, with a view to seeing if it contains bacteria.

I should have noted before that Dr. Magitot lays no stress in his paper on the use of carbolic acid or other disinfectant, but washes the teeth simply in tepid water.

DISCUSSION.

The President said he was rather glad to find that Dr. Magitot's paper was not of such a sensational character, as might have been expected from the references to it which had appeared in some of the daily papers. Dr. Magitot confined himself to replantation of teeth, whilst the paragraph he had read in the *Times* spoke also of transplantation and of the teeth of the lower animals being made available to supply deficiencies in the human subject. He feared that the general public would be disappointed when they learnt how unduly their expectations had been raised. At the same time the paper was a very valuable one ; Dr. Magitot was entitled to great praise for the skill and perseverance with which he had carried out the treatment he had decided upon, and which had ultimately been attended with such unprecedented success. The thanks of the Society were certainly due to Dr. Magitot for the courtesy with which he had placed his results before them, and to Mr. Charles Tomes for the trouble he had taken in preparing so clear and instructive an abstract.

Mr. Coleman said he felt bound to claim for himself and Mr. Lyons some of the credit which had been given to Dr. Magitot. They had practised this mode of treatment pretty extensively, and with a fair amount of success, some time before Dr. Magitot had begun to turn his attention in that direction. So long ago as March, 1870, he had read a paper before the Society, at its old quarters in Soho-square, in which he had advocated extraction and replantation as a means of saving teeth affected with chronic periostitis when all other means had failed. The plan followed by Mr. Lyons and himself differed in some respects from that adopted by Dr. Magitot. They had, as far as possible, made use of the precautions suggested by the antiseptic system of surgery. After removing the tooth, they had cut off the apex of the fang, if much diseased, scraped off any thickened portions of periosteum, and then replaced the tooth after washing both it and its socket with some antiseptic solution. He was obliged to confess that his success had not equalled that of Dr. Magitot. Some of the replanted teeth came away in a stinking condition, and without a vestige of periosteum. In a larger number the roots were absorbed and the teeth dropped out, but a large number were saved, every one of which must have been lost but for the success of this mode of treatment. The conclusion he arrived at was, that although the treatment might never come into very general use, yet that it was a valuable resource to fall back upon, and a plan which might be carried out with advantage in certain cases.

Mr. Weiss said he had hoped to have been able to exhibit a model showing the result of an interesting case of transplantation which he had performed eighteen months ago. In August, 1877, a man came to the hospital with a right lateral incisor badly carious, whilst its fellow on the left was crowded quite out of line. Both the teeth were extracted, and the sound tooth from the left side placed in the vacant space on the right, where it soon acquired firm adhesions. When he last saw the patient, in June, 1878, the tooth remained sound and in good position. He had inquired about him lately, with the view of bringing him forward at that meeting, but found that he had gone to Leeds. He had promised, however, that when next he came to London, he would call and show himself again at the hospital.

Mr. **Henry** said he knew of a successful case of replantation of twenty-five years' standing. In the year 1853, a practitioner, in extracting a lower six-year-old molar, extracted also the second lower bicuspid. The tooth was immediately replaced, soon became firm, and had been a useful tooth ever since, though the patient said it was apt to become a little tender in wet weather. The following case had occurred in his own practice: A boy came to him with one of the upper central incisors hanging half an inch below the other teeth, and quite loose. He replaced it, secured it as well as he could to the adjoining teeth, and it was soon as firm as before. Eighteen months afterwards the patient came again, having loosened the same tooth a second time by an accidental blow. It was treated in the same way, and the result was again successful.

Dr. Field said he readily acknowledged the great interest attached to Dr. Magitot's experiments, but he had never found it necessary to resort to the practice of replantation himself, and the result of the few cases he had seen in the practice of others, had tended to confirm him in his low opinion of the value of this mode of treatment. He believed that alveolar abscess could be treated in other ways with a still smaller percentage of failures. He was interested to hear that Dr. Magitot attached importance to the establishment of a fistula communicating with the apex of the root. He himself believed that this plan of allowing free exit for discharge was the great secret of success. But, if the fistula had to be established and kept open, where was the need for extraction and replantation? The treatment could be carried on quite as well through the root canal without disturbing the tooth at all. The apex of the fang, if diseased, could also be excised and removed through the gum without extraction of the tooth. Mr. Tomes had mentioned absorbtion of the socket as having followed in one of Dr. Magitot's cases. This was not specially a result of the operation, but might occur after treatment by other means. He believed it to be a consequence of extensive periosteal inflammation.

Mr. **Gaddes** said that in the cases that had been recorded, nothing had been said as to the condition of the pulp and the pulp-cavity. In those instances in which the teeth had been replaced without the contents of the pulp-cavity having been removed, what became of the pulp? Was there reunion of the ruptured vessels and nerves, and the vitality of the pulp thus maintained—or did the pulp die? If so, what became of it? The fact was known to those present, that in many cases disintegration of the tooth-pulp took place, and the products of decomposition were absorbed as readily as formed, and there was virtually no abscess-sac. But, under certain conditions, as the patient getting below par, the ratio between decomposition and absorption altered and discomfort resulted, yet this would disappear by a little treatment, or by the patient regaining vigor. There were certain pathological questions which had to be solved before the *modus operandi* of replantation could be understood.

Mr. WALTER CAMPBELL said that between three and four years ago a lady, who was possessed of very good and regular teeth, applied to him because her right upper central incisor was $\frac{1}{8}$ inch shorter than the neighboring teeth. The tooth was quite firm, but by gentle manipulation he managed to draw it down into line with the others. No ill effect followed, and the tooth was still sound and healthy.

Mr. GEORGE TORPEY said he had had some experience in the practice of replantation He had performed the operation twenty-three times without a single failure, and had only found it necessary to tie in the tooth upon one occasion. As it was so late in the evening he would not enter into any particulars, but would refer members to this month's number of the *Review of Dental Surgery*, in which they would find his cases recorded in full. He thought that the operation was one which deserved the serious attention of the profession.

Mr. LYONS said that before comparing the results of Dr. Magitot's treatment with his own he should like to be assured that Dr. Magitot had been as careful as himself in operating upon none but the most unpromising cases. He could state emphatically that of the forty cases he had treated by replantation, not one could have been saved by any more conservative means. Then in comparing replantation with other modes of treatment, the saving of time and trouble to the patient must be taken into account. The ordinary treatment of alveolar abscess lasted several weeks and necessitated a considerable number of visits, whilst in the case of extraction and replantation the chief part of the treatment was completed at one operation, and a much smaller number of visits generally sufficed to complete the case.

Mr. TOMES said he would confine his reply within a very few words.

He was sorry that Dr. Field's experience of the result of the operation had been so unfortunate. Dr. Magitot had only found it necessary to grind the cusps of a tooth in one case, and that had ultimately turned out a failure. The fistulæ were generally kept open but a very short time —the longest period was seven weeks.

The President then proposed the usual vote of thanks to those who had contributed to the interest of the meeting.

This being carried unanimously, the meeting adjourned.

The following applications for Membership have been received by the Council:—

Thomas Albert Roberts, L. D. S., 49 Charlwood Street, Belgrave Road, S. W., Resident.

Edward Fothergill, L. D. S., 5 Elden Square, New Castle-on-Tyne, Non-Resident.

Edward George Betts, L. D.S., 21 Freegrove Road, Holloway, Resident.

Charles D. Conk, M. D,, 133 Pacific Street, Brooklyn, New York, Non-Resident.

George L. Parmelee, M. D., D. M. D., 25 Pratt Street, Hartford, Connecticut, Non-Resident.

George Tufton Moffatt, M. D., D. M. D., 196 Roylston Street, Boston, Non-Resident.

THE EFFECT OF OXYCHLORIDE OF ZINC UPON DENTINE.

BY F. E. HOWARD, M. D. S., GENESEO, N. Y.

The application of oxychloride of zinc to dentine produces escharotic irritation. This is usually followed by a healthy stimulating effect upon the organ.

This compound has an affinity for the tooth element; it seals up the mouths of the exposed bubuli of a cavity and obtunds sensibility, and, being a non-conductor, it gives nature a chance to go on with the work of proper and perfect development. That is, it protects the cavity, half decalcified and partly disorganized structure, from the secretions, external irritation and the like: then the pulp does the work through the medium of the perapheral cells.

It is an antiseptic and therapeutic, and when applied to half decalcified dentine and disorganized tooth bone it changes its condition into a hard, horny-like consistency, the fibrellœ being obliterated and the tubuli filled (so to speak) with perfectly calcified dentine. This puts the structure in a condition to better resist the action of the secretion ; decay does not attack it with that same success that it does highly organized tooth bone.

In its application to exposed pulps its irritating effects are not deleterious ; on the contrary, when the odontoblasts are not obliterated, it stimulates the pulp to a "protective condition," and secondary deposits are produced from "this cause." Irritation is one of the main causes of the deposit of secondary dentine.

We see this in every-day practice, when the teeth wear down by attrition, when decay attacks the tooth, the pulp recedes and protects itself from "this cause."

Now, if we have too much of this, the pulp will become inflamed, suppurate and die ! "Oxychloride will kill or cure." If the right proportion is applied, and the pulp is in the right condition to receive its influences, it will be a "success." If an overdose is given, and the hydrochloride not well absorbed when applied as a capping, it will irritate to inflammation, and in all probability the pulp will "succumb."

If we examine a cavity after a pulp has been capped a few months with oxychloride of zinc, we will find that secondary dentine deposits are going on, or the pulp will have become disorganized. Not so with many other non-irritating, neutral preparations that are used for this purpose. Gutta-percha cappings have been removed months after (as many can testify), and the pulps found in just the same condition as when "capped." The external irritating influences, such as acid secretions, pressure of foreign substances, and the like, were removed, and a non-conducting, non-irritating gutta-percha filling introduced. There was nothing to excite "protective action" on the part of the odontoblasts, and the pulp remains in this state for a long time, and will protect itself "but slowly." According to the general order of nature, the pulp tends to diminish in size, and must form protective tissue in this way as a natural consequence. But this is a slow process.

Its application to root filling has been very "satisfactory" with many of the best men in the profession. It can be carried to the extreme ends of the roots of teeth. Its antiseptic properties lessen the likelihood of "periostial difficulties," and there is not that incompatibility existing between devitalized teeth filled with this in the roots that there seems to be when metal is used.

Its use in many ways makes it a "valuable preparation for the dentist."

NEW BOOKS.

Treatment and Prevention of Decay of the Teeth.—By Robert Arthur, M.D., D.D.S., second edition, with fifty illustrations. Philadelphia. J. B. Lippincott & Co., 1879. Bound in cloth, 216 pages.

NOTES.

Pennsylvania State Dental Society.

The Eleventh Annual Meeting of this Society will convene at Delaware Water Gap, Pa., on Tuesday, July 29, 1879, at 10 o'clock A. M. The subjects for Essays and Discussion will be published hereafter. Dentists having cases suitable for surgical clinics, will please inform the Executive Committee at once. Persons having improvements or inventions of interest to the profession, will please notify the Committee, who will make proper arrangements to have them exhibited. Hotel rates to persons attending the meeting have been reduced to $2.75 per day.

C. S. Beck, M.D., D.D.S.,
Chairman Executive Committee.
Wilkesbarre, Pa.

The Convention of N. E. Dental Societies

Will be held on June 5th and 6th, at Wesleyan Hall, No. 36 Bromfield Street, Boston, Mass.

Please make a note in your appointment book.

Ffteen Essays are already secured from able members, thus ensuring a very interesting and profitable meeting. A full programme of Essayists and Subjects will be issued when completed.

Central Committee of Arrangements:—C. H. Osgood, J. H. Kidder, R. R. Andrews, H. C. Merriam, A. M. Dudley, Massachusetts Dental Society; I. Goddard, Maine Dental Society; C. W. Clement, New Hampshire Dental Society; Jas. Lewis, Vermont Dental Society; Geo. L. Parmelee, Connecticut Dental Society; W. P. Church, Rhode Island Dental Society; C. A. Brackett, Conn. Valley Dental Society; L. D. Sheppard, Merimac Valley Dental Association; E. P. Bradbury, American Academy of Dental Society; J. H. Batchelder, Boston Society for dental Improvement; T. G. W. Werner, Harvard Odontological Society.

C. H. Osgood, *Ghairman.*
A. M. Dudley, *Salem, Secretary.*

Georgia State Dental Society.

Atlanta, Ga., April 18th, 1879.

Messrs. Johnston Bros. & Selby:

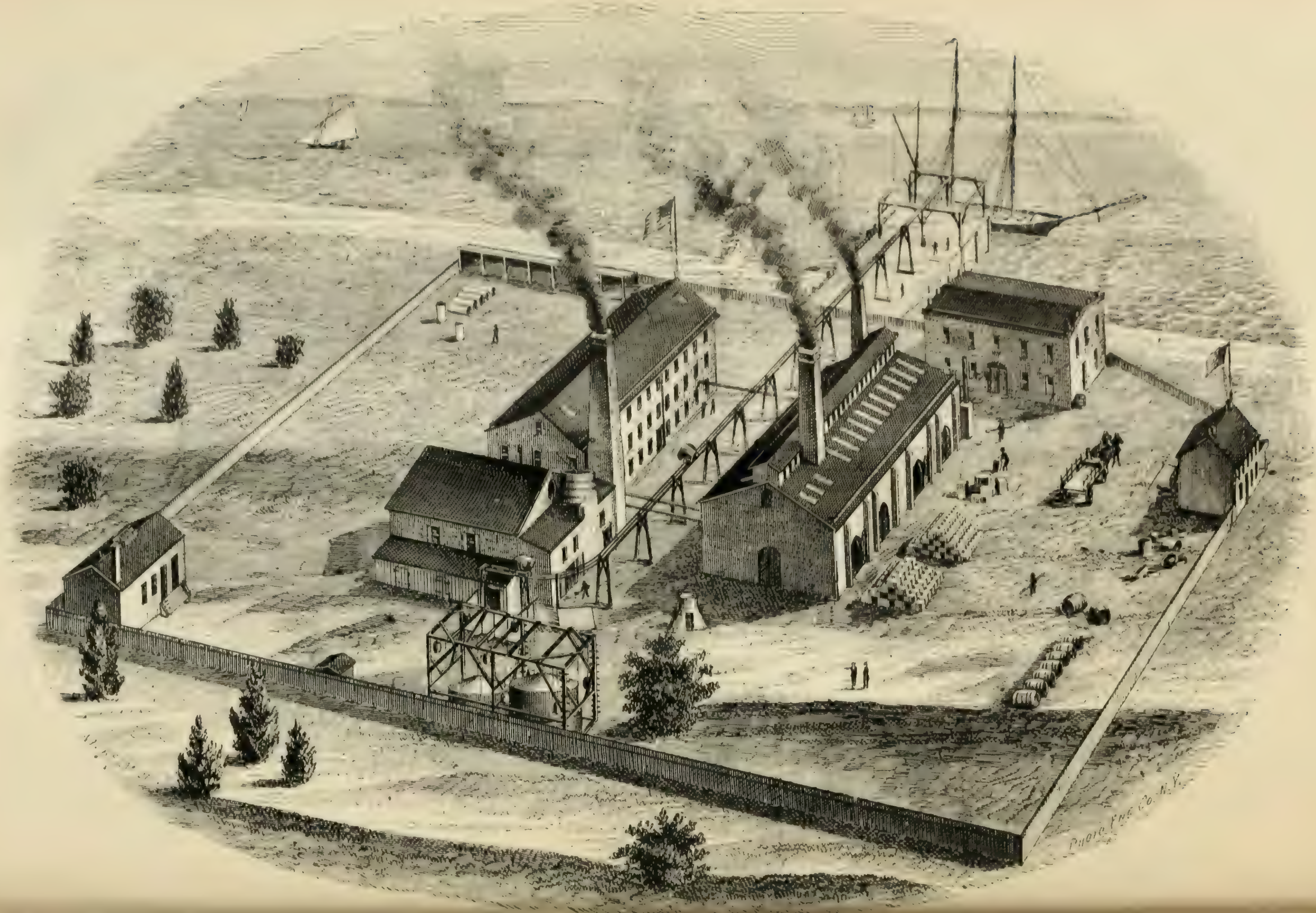
Sirs,—The Eleventh Annual Session of the Georgia State Dental Society will be held in the City of Augusta, Ga., on Tuesday, the 8th of July, next, at 10 o'clock, A. M. The State Board of Dental Examiners meet at the same time and place.

L. D. Carpenter, *Cor. Sec'y.*

Indiana State Dental Association.

The Twenty-first Annnal Session of the Indiana State Dental Association will be held in Wright's Hall, 68½ East Market Street, Indianapolis, commencing Tuesday June 24th, 1879, at 10 o'clock, A. M. The largest attendance in its history is expected.

J. A. Turner, *Secretary.*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JOHNSTONS'

Dental Miscellany.

Vol. VI.——*June, 1879.*——No. 66.

THE BROOKLYN DENTAL SOCIETY.

The Brooklyn Dental Society held its regular meeting at the residence of Dr. Fry, on Monday evening, Feb. 10, 1879. Vice-President Dr. A. N. Chapman in the Chair.

Incidents of Office Practice.

Dr. Rippier : A patient presented himself some time ago to have a left inferior wisdom tooth extracted. It had caused a great deal of irritation in its eruption, the anterior cusp of the tooth pressing against the posterior side of the second molar. Several unsuccessful attempts were made to extract it. It was finally agreed to remove the second molar. The wisdom tooth was loose and could be moved around in its socket, but it was impossible to get it out from its peculiar position. The second molar was extracted, and it drew the wisdom tooth out with it—they both came together. After being cleansed and examined, the second molar was found in the condition you see it, with quite a cavity in the posterior root. I have not the wisdom tooth. The patient took both teeth away and lost the wisdom tooth.

Dr. Atkinson : Is the cavity from friction or decay?

Dr. Rippier : That I leave the gentlemen to judge. I should judge it was from the pressure of the wisdom tooth on the periosteum, causing disease of the bone.

A highly evolved monkey, about 13 months' old, was brought in by one of my patients. The monkey would not eat and was evidently suffering. His master could not make out what the trouble was. His son happened to look in the mouth and the right upper central was found to be affected by acute periodontitis and there was a good deal of swelling of the gum. The monkey did not like the instruments that lay before him. He looked pretty sharp at me. We had trouble to get his mouth open His master thought it was better to have the tooth out. I desired to save it, but I was not quite certain whether it was a deciduous tooth or not. How were we going to get at it? I finally took what was once the handle of a mallet, and slipped over it a piece of rubber tubing, just about the size of the back teeth, so that he could bite through it and not hurt his teeth, and extracted the offender. It was as black as you see. It was in quite firm. After he got it out, he seemed greatly relieved. He gave one little yell: his master told him to spit, and he did it as gracefully as any one would. The eye teeth were beautifully clean and the gums healthy and the breath so sweet that it would shame some of our patients.

Dr. ATKINSON: How old was he?

Dr. CRANDELL: Thirteen months.

Dr. ATKINSON: I guess this is a deciduous tooth. I am not up on monkeyology.

A voice asked Dr. Atkinson's opinion as to the first tooth presented by Dr. Rippier.

Dr. ATKINSON: I only had a superficial examination of it, but I think Dr. Rippier has given us the only rational explanation of the condition of things. That the crown of the tooth pressing against the second molar was the cause of absorption of the anterior roots as well as the burrowing into the posterior root.

Dr. MIRICK: Would you sacrifice the second molar?

Dr. ATKINSON: I don't think I would. If I had known the condition I might have. I never saw a wisdom tooth where it was necessary to remove the second molar to get at it. It is only lack of instruments and a knowledge of the anatomy of the part that would lead anyone to blunder on that.

Dr. MIRICK: I am satisfied, in certain cases, he would sliver the ramus of the jaw a little.

Dr. ATKINSON: Take a forcep and go at it. I have taken them out when they were completely covered with bone. In one of my earliest operations I remember distinctly of having to cut through the bony sac to get out the tooth. I succeeded in getting it out, but it was not pleasant either to the patient or myself.

Dr. FRY: There was a very interesting case at the clinic the other day. I should like to hear from Dr. Chapman the circumstances that attended it. I would like him to describe it.

Dr. Chapman: I will try to describe it. The patient was presented to me on Monday of last week with what I diagnosed to be a cystic tumor of the superior maxillary, proceeding from an old abscess. I left her for the clinic on Saturday, at which time I hoped Dr. Atkinson and other gentlemen would be present. At the time of my first examination I recognized a parchment-like feeling. There was a little difference of opinion among the gentlemen. I believe I was the only one who believed the antrum was not involved. I don't think it is. I injected with salt and water and got nothing through the nares or nostril. That was pretty positive.

Dr. Atkinson: What is the appearance of the substance—honey like?

Dr. Chapman: I got nothing of that character.

Dr. Atkinson: Was it hard?

Dr. Chapman: No. I got a dark colored fluid with some "cheesey" admixture. It was not offensive. If any of the gentlemen will come to my office at six o'clock, to-morrow evening, she will be there. She is very willing to be examined; she is a poor girl and I made the suggestion if she would allow me to use her in that way, it would reduce my price of treatment.

Dr. Atkinson: I would like to be allowed to make a remark or two. Many times we have tumors that encroach upon the territory of the antrum that do not involve the antral cavity proper, by reason of forcing in the lining membrane of the antrum, forming a sac, in which the growth is held; it shows the diagnostic ability of the chairman when he gives us proof that is a test for a diseased antrum, or as to its being involved when you inject it and get no flow into the nostril or back into the throat.

Dr. Chapman: We entered the sac through the socket of the palatine root of the first molar tooth.

Dr. Mirick: That would take it pretty direct into it.

Dr. Chapman: I believe by going direct through the center of the palatine root of the first molar you could strike the antrum.

Dr. Atkinson: I have seen many palatine roots of molar teeth tha were entirely through the cancellous portion of the socket, and were like little nodules within the antral cavity with the blood vessels and nerves running along the membrane penetrating it. In certain cases, if you extract the cuspid tooth you may enter a little projection of the antrum. I can generally tell from the person's external appearance where the antrum would be. The point I wanted to commend was the common sense way that the President went to work to determine whether it was there or not. I am only speaking from general principles, of course. I have not seen the case. There are a great many interesting cases that arise here that the physicians are utterly unable to do anything with. I have a case now, commenced last Summer, that has been said to be cured three times, and the cavity was opened inside of the cavity of the mouth into the antrum as supposed. It was into the antral territory but no discharge from the nose, and none when I made the operation. The case is cured, and the only thing that we are waiting for is the filling in of new material. The operation was such as I always make in those cases, simply burring out of the bone to healthy tissue, and as I have said many times, reducing an old sore to a clean wound.

Dr. CHAPMAN : What would be the treatment for this case of mine ?

Dr. ATKINSON : I should simply wash out with warm salt and water until it came out clean, take out what did not belong there, and after that wet completely all over the sides of it, either by injection or a wad of cotton saturated with chloride of zinc, which I use where I wish union by first intention. It makes a bond of union that is the best I know of.

Dr MIRICK : This case of Dr. Chapman's recalls to mind a similar case. A young lady who came from New Orleans, just before the war, who had been in the hands of several physicans who had treated her for the enlargement that was throwing out the cheek. She had been sent North to be put under treatment of some celebrated surgeon. She came to Brooklyn and her physician recommended her to me. I examined the case, and I thought it was pretty serious. It looked to me a great deal as Dr. Chapman's. In examining closely, the bicuspid appeared to have been extracted. The gum looked healthy. I examined around the gum and I made a little opening here, which gradually wormed itself into the gum for about an inch and then struck something which I had no difficulty in diagnosing as the root of the tooth. By working at it I got underneath it and drew out the end of the root. It was the root of one of the bicuspids. In a fortnight, as Dr. Chapman says, there was a perceptible improvement in the protuberance. She returned South, and I did nothing further with it. After the war closed the young lady came to see me, with her face in an entirely normal condition ; nothing was done except taking out that little root ; and to my mind instead of working downward it appeared to work upward, causing this trouble. It was further up than I should expect to find a bicuspid root. Her friends came to me before they went away and wanted my bill, expecting I should charge $500 or $1000, but I charged them fifty cents for extracting the root, and have been mad at myself ever since.

Dr. Chapman: This is the fourth cystic tumor that has been in my hands. The first I have not a very clear recollection of. The second was a small one which I cut into and stopped and plugged with cotton saturated with iodine. Another was a very large one. In opening it I saturated the parts with iodine and sulphuric acid, and it gave the patient a great deal of trouble which he did not have before I commenced to work at him. It is gradually decreasing, but there was an opening in the mouth and there is a discharge.

Dr. Atkinson: There is dead bone there, and as soon as it is dissolved away or removed artificially it will get well. There is a necrosed condition there that keeps up the discharge.

Dr. Chapman: Is there any risk in leaving it as it is?

Dr. Atkinson: Nothing but the waste of time.

Dr. Farrar: I have now under treatment a case.

Dr. Chapman: Do you find the antrum penetrated?

Dr. Farrar: The chamber is not involved, but I can take a probe and push the lining membrane up into it. The outer plate of the superior maxillary along against the bicuspid teeth is decalcified, so bulged that it is forcing the cheek out, and as I press upon it it springs in as the bottom of a tin pan might be sprung in. It feels like cartilage, elastic. Is not rigid, and has a metallic feel. I am treating it from the outside of the gum, and to prevent the shell from remaining bulged out I am gradually forcing it in. To-day I sprung it in about a quarter of an inch. I propose to give anæsthetics and heroically force the shell in at one sitting. If we do not do that, the sac will probably fill up and the deformity remain through life.

Dr. Chapman: Don't you expect that outer plate will be dissolved away now?

Dr. Farrar: No; but I think it is becoming more and more decalcified. I look now for new formation and filling in of the space. It is about the size of a pigeon's egg. It is an interesting case, because it originated in a blind abscess and was seven years forming, never breaking out. I told the patient three years ago to treat it but she thought she would not. Up to a year ago it was nothing noticeable in size. I had a blind abscess in my own mouth that was five years burrowing in that kind of way. About three or four months ago it was the size of a half filbert, and I experimented on myself. I tried the most radical means of treatment, and cured it in two or three weeks.

ARTIFICIAL DENTURES.

Dr. Scott : For cheap dentistry give me celluloid.

Dr. Chapman : Do you find it permanent ?

Dr. Scott : Permanent, yes, sir ; I will show you plates that have been in use six years, and are good yet.

Dr. Andrews : Do you find any trouble from the secretions of the mouth ?

Dr. Scott : No : it will not soften.

Dr. Walker : Do you find any trouble from warping ?

Dr. Scott : It will not warp if it is properly made. I made in July 37, August 40, September 37, October 40, November 34, December 37, January 43. I have not made a failure so far. "Never had to make one over." There is not one that I know of that is broken. I don't claim to have the best patients in the City. I have as good as the rest. For cheap work, celluloid will give better satisfaction to the public than anything else. For permanency I think there is nothing equal to gold.

Dr. Chapman : Do you use a dry press or steam ?

Dr. Scott : Steam.

Dr. Mirick : You don't have any that need repairs ?

Dr. Scott : Oh, yes ! It fails the same as gold or rubber plates fail. I have had three this last week. Everything breaks, and celluloid for cheap work is better than rubber. The great trouble is that you make two or three sets, and you fail and you drop it. You don't keep on. Look at the work on rubber. It is the easiest thing to use. You can't make a mistake if you understand it.

Dr. Fry : I got acquainted with a dentist some time ago, and he says, "Do you use celluloid ?" I replied, "No, I don't, although there are now very good men trying it ; but when plates come back I don't like the looks of them." Said he, "It is the best stuff you ever saw." Pulling out a set of teeth, he says, "Look at them. Don't you think they are splendid ?" It was a vile thing.

Dr. Andrews : I find there is considerable difference in the oral secretions in different individuals. For some mouths the material is softened. As a rule, I have found a strong pressure in every case essential to make a union.

Dr. Fishbough : I have used celluloid the last six years. I have made some failures, that is to say, there have been two or three special sets of celluloid that have come back to me that were blackened, grown black in the mouth by wearing. I cannot refer that change to any cause very definitely ; but I do find there is an advantage; that it improves celluloid if—before you commence to screw down the flask—you allow your fire to go out, to allow the process of cooling to be set up. It seems to condense it ; closes the pores and prevents that absorption of the fluids of the mouth that is liable to take place if you complete your operation while the piece is very hot. I think every one, by a moment's reflection, will see the common sense of that, and I believe many of the cases of failures have been owing to the application of too high a degree of temperature. A heat above 280° I think tends to destroy. I think it is better and safer to use a moderate heat.

Adjourned.

SOME MEASUREMENTS OF SKULLS AND HEADS, SHOWING THAT DEVELOPMENT, GROWTH AND EDUCATION INCREASE THE VOLUME OF THE ANTERIOR PARTS OF THE CEREBRUM—INDICATED BY THE MASTO-FRONTAL ANGLE.

BY J. S. WRIGHT, M. D.

(*Continued from page* 188.)

Let us now, for a time, turn from these skulls to the heads of the living. The hair, which is more or less abundant ; the peri-osseous tissues, which are more or less thick ; the bones, which vary in weight, and the membranes which cover the encephalon, must be included in measuring the heads of the living ; and it would certainly be impossible to tell beforehand the depth of the cortex cerebri or the complexity of the convolutions in a given case ; nor can we predict the quality and education of a brain by weighing it, or by measuring the bone-case that contains it. Hence, in a word, our measurements of heads of the living must be *approximate.* And in order to compare the heads of the *uneducated* and the heads of the *educated,* I have measured a certain number belonging to each class.

TABLE NO. 6.

Containing the age, the nativity and the occupation of 21 individuals of the uneducated class, and the measurements of their heads.

No.	Base-line.	Transverse Diameter.	Antero-post. Diameter.	Circumference.	Anterior Arch.	Frontal Arch.	Middle Arch.	Superior Arch.	Posterior Arch.	Masto-Frontal Angle.	Age.	Nativity.	Occupation
1	5.25	6.	7.5	22.	14.	15.	14.5	14.	7.75	77°	18 yrs.	Norway . . .	Sailor.
2	5.25	6.5	7.625	22.75	13.5	14.5	15.	15.5	8.5	73°	16 "	Norway . . .	Sailor.
3	5.25	5.875	7.5	22.25	14.5	15.5	14.75	14.	7.75	77°	54 "	Germaay	Sailor.
4	4.75	5.75	7.25	21.	13.375	13.5	13.75	13.375	7.75	75°	14 "	Italy	Sailor.
5	5.75	6.75	7.625	22.5	14.	14.5	14.25	13.5	8.	80°	39 "	Denmark . .	Sailor.
6	5.5	6.	7.625	22.5	14.375	14.625	14.25	14.	7.75	75°	24 "	Norway . . .	Sailor.
7	5.375	6.	875	21.	13.5	13.75	14.25	13.5	8.5	76°	37 "	Italy	Sailor.
8	5.375	5.875	7.5	22.	14.5	15.25	14.5	14.25	7.75	80°	22 "	Finland . . .	Sailor.
9	5.625	6.	7.5	22.25	13.25	14.5	14.	14.	8.25	81°	30 "	U. S. A . . .	Sailor.
10	5.875	6.375	7.625	22.5	15.	15.	15.	14.5	8.	74°	32 "	Germany . .	Sailor.
11	3.375	5.875	7.25	21.5	14.	14.25	14.5	13.75	8.	74°	22 "	Austria. . . .	Sailor.
12	5.25	5.875	7.5	22.	13.625	14.25	14.	14.	7.375	75°	36 "	Ireland. . . .	Sailor.
13	5.75	5.75	7.25	21.75	14.	15.	14.25	14.	7.5	67°	23 "	Ireland. . . .	Sailor.
14	5.25	5.75	7.375	21.5	13.25	14.25	14.5	14.	8.	72°	57 "	Scotland . .	Sailor.
15	5.125	5.875	8.	23.	14.25	14.75	14.5	14.25	8.	80°	57 "	Ireland. . . .	Carpenter.
16	5.375	5.75	7.25	21.75	13.25	13.75	13.5	13.	7.5	76°	22 "	Ireland. . . .	Laborer.
17	5.25	5.625	7.5	21.75	13.875	14.	14.	14.	7.25	80°	29 "	Ireland. . . .	Laborer.
18	5.375	5.875	7.625	22.25	13.	13.875	14.	14.25	8.	79°	22 "	U. S. A. . . .	Laborer.
19	5.5	5.875	7.5	22.	13.875	14.25	13.75	13.125	7.5	76°	18 "	Denmark . .	Sailor.
20	5.5	6.375	7.125	22.125	14.	15.125	14.75	14.5	7.875	77°	56 "	Germany . .	Laborer.
21	5.375	6.375	7.375	22.25	14.5	14.5	14.75	14.5	7.875	82°	45 "	Holland . . .	Nurse.

The individuals in the preceding table range from 14 to 57 years of age, and only four are under 22 years of age ; as the brain has usually attained about its full size at 14 years of age, our table will afford a fair average. Ten nationalities are represented. There are four different occupations. The carpenter and the nurse have fine heads. The least, the greatest, and the average dimensions of Table No 6 are recorded in the following table :

TABLE NO. 7.

Containing the least, the greatest and the average dimensions of the heads of 21 uneducated men.

Dimensions.	Least.	Greatest.	Average.
Base-line............	4.75 inches.	5.875 inches. 4.75 "	5.386 inches.
Difference		1.125 inches.	
Transverse Diameter..	5.625 inches.	6.75 inches. 5.625 "	6.005 inches.
Difference		1.125 inch.	
Antero-post.. Diam'r.	6.875 inches.	8. inches. 6.875 "	7.446 inches.
Difference		1.125 inches.	
Circumference	21. inches.	23. inches. 21. "	22.029 inches.
Difference		2. inches.	
Anterior Arch.......	13. inches.	15. inches. 13. "	13.886 inches.
Difference		2. inches.	
Frontal Arch........	13.5 inches.	15.5 inches. 13.5 "	14.482 inches.
Difference		2. inches.	
Middle Arch........	13.5 inches.	15.5 inches. 13.5 "	14.321 inches.
Difference		1.5 inches.	
Superior Arch.......	13. inches.	15.5 inches. 13. "	13.964 inches.
Difference		2.5 inches.	
Posterior Arch......	7.25 inches.	8.25 inches. 7.25 "	7.833 inches.
Difference		1. inch.	

TABLE NO. 7.—*Continued.*

Dimensions.	Least.	Greatest.	Average.
Masto-frontal Angle..	67.°	82.° 67.°	76.5°
Difference		15.°	
Next Least Masto-frontal Angle.....	73.°	82.° 73.°	
Difference		9.°	

The following conclusions may be drawn from Table No. 7 :

1. The base line, the transverse diameter and the antero-posterior diameter of 21 heads of uneducated men have a variation of 1.125 linear inches.

2. The circumference, the anterior arch and the frontal arch of the same heads have a variation of two linear inches.

3. The middle arch has a variation of 1.5 linear inches.

4. The superior arch has a variation of 2.5 linear inches.

5. The posterior arch has a variation of 1 linear inch.

6. The masto-frontal angle of these 21 heads has a variation of 15°. As 67°, the masto-frontal angle of No. 13 of Table No. 6, is unusually small (?), it seems to be proper to take the next least masto-frontal angle for comparison. This gives a variation of 9°.

The important question arises : *Are there any distinguishing marks on the head by which we can determine the difference that exists between the uneducated and the educated ?—or rather, can we tell by examining a head, if it belongs to a lower or a higher order ?* Is there a difference in any of the above dimensions ? Is there a difference in the size of the inter-mastoid arches ? Is there a difference in the circumference ? *And is there a difference in the size of the masto-frontal angle ?* In order to make an attempt to answer these questions approximately the following table is subjoined, containing the measurements of the heads of 21 educated men.

TABLE NO. 8.

Containing the height and the weight of 21 educated men and the dimensions of their heads.

No.	Base-line.	Transverse Diameter.	Antero post Diameter.	Circumference.	Anterior Arch.	Frontal Arch.	Middle Arch.	Superior Arch.	Posterior Arch.	Masto-frontal Angle	Height in Inches.	Weight in lbs.
1	5.625	6.375	7.875	23.375	14.625	15.25	15.375	15.	9.	78°	70.	180.
2	5.5	5.875	7.625	22.25	14.875	15.5	15.5	14.875	8.5	79°	69.	165.
3	5.75	6.5	7.75	23.25	14.5	15.5	15.125	14.25	8.25	79°	68.	150.
4	5.25	6.125	7.375	22.25	14.	14.5	14.5	14.5	8.125	80°	70.	175.
5	5.25	6.	8.	23.	15.	15.	15.5	14.75	8.	82°	71.	185.
6	5.125	5.375	7.25	21.5	13.	14.125	14.25	14.5	7.875	80°	68.	125.
7	5.125	6.	7.75	22.375	14.5	14.75	14.375	14.	7.625	79°	64.	135.
8	5.75	6.25	7.5	22.75	14.	14.5	14.75	13.875	8.	80°	70.	185.
9	5.25	5.875	7.625	22.25	13.75	14.5	14.5	14.25	8.25	78°	68.	160.
10	5.375	6.	7.625	22.375	13.75	14.5	14.25	14.25	7.75	79°	66.	160.
11	5.125	6.125	7.375	22.25	14.	14.	14.75	13.75	8.5	79°	68.	140.
12	5.5	6.125	7.875	23.25	14.5	15.	15.	15.	8.75	79°	71.	165.
13	5.375	5.875	7.75	22.5	14.25	14.75	14.625	14.25	7.5	77°	71.	148.
14	5.375	6.125	7.75	22.5	15.25	15.25	15.25	15.25	7.75	82°	68.	135.
15	5.25	5.75	7.625	22.	13.5	14.5	14.75	14.75	8.	80°	68.	150.
16	5.375	6.125	7.75	22.625	14.25	14.25	14.5	15.	8.25	81°	68.	138.
17	5.375	6.125	7.875	22.75	14.5	14.5	14.5	14.	8.125	82°	70.5	195.
18	5.25	6.	8.	22.875	14.	14.5	15.	14.375	8.	81°	70.	145.
19	5.375	6.25	7.625	22.5	13.5	14.5	14.5	13.5	8.	81°	65.5	130.
20	5.5	6.	7.875	22.875	14.25	15.25	14.875	14.	8.25	78°	67.	148.
21	5.5	6.	8.	23.25	14.25	15.25	14.875	14.	8.75	81°	70.5	175.

The least, the greatest and the average dimensions of Table No. 8 are arranged in the following table :

TABLE NO. 9.

Containing the least, the greatest and the average dimensions of the heads of 21 educated men; also their heights and weights.

Dimensions.	**Least.**	**Greatest.**	**Average.**
Base-line...........	5.125 inches.	5.75 inches. 5.125 “	5.38 inches.
Difference..........		0.625 inches.	
Transverse Diameter.	5.375 inches.	6.5 inches. 5.375 “	6.053 inches.
Difference...........		1.125 inches.	
Antero-post. Diam'r.	7.25 inches.	8. inches. 7.25 “	7.708 inches.
Difference...........		0.75 inches.	
Circumference.......	21.5 inches.	23.375 inches. 21.5 “	22.613 inches.
Difference..........		1.875 inches.	
Anterior Arch.......	13. inches.	15.25 inches. 13. “	13.7 inches.
Difference..........		2.25 inches.	
Frontal Arch........	14. inches.	15.5 inches. 14. “	14.750 inches.
Difference..........		1.5 inches.	
Middle Arch........	14.25 inches.	15.5 inches. 14.25 “	14.785 inches.
Difference..........		1.25 inches.	
Superior Arch.......	13.5 inches.	15.25 inches. 13.5 “	14.387 inches.
Difference..........		1.75 inches.	
Posterior Arch.......	7.5 inches.	9. inches. 7.5 “	8.154 inches.
Difference..........		1.5 inches.	
Masto-frontal Angle.	77.°	82.° 77.°	79.75°
Difference..........		5.°	
Height.............	64. inches.	71. inches. 64. “	68.376 inches.
Difference..........		7. inches.	
Weight............	125. pounds.	195. pounds. 125. “	156.619 pounds.
Difference..........		70. pounds.	

From Table No. 9 the following conclusions may be drawn—namely :

1. The base-line and the antero-posterior diameter of the heads of 21 educated men vary on the average nearly seven-tenths of an inch.

2. The transverse diameter varies 1.125 inches.

3. The circumference varies 1.875 inches.

4. *The anterior arch varies most—namely,* 2.25 *inches.*

5. The frontal and the posterior arches vary 1.5 inches.

6. The middle and the superior arches vary respectively 1.25 inches and 1.75 inches.

7. *The masto-frontal angle varies only* 5°.

8. The height varies 7 inches.

9. The weight is a little above the ordinary average, and varies 70 pounds avoirdupois.

The weight of the brain and the weight of the body, other things being equal, have a similar variation.

But our measurements of educated heads show exceptions to this statement.

The average dimensions in Tables No. 7 and No. 9, are noted and contrasted in Table No. 10 :

TABLE NO. 10.

Containing the average dimensions of the heads of 21 uneducated and 21 educated men: also the differences of their dimensions.

Average Dimensions.	Heads of Educated.	Heads of Uneducated.	Differences.
Base-line...........	5.38 inches.	5.386 inches.	0.006 inches.
Transverse Diameter.	6.053 "	6.005 "	0.048 "
Antero-post. Diam'r.	7.708 "	7.446 "	0.262 "
Circumference	22.613 "	22.029 "	00.584 "
Anterior Arch.......	13.7 "	13 886 "	00.186 "
Frontal Arch	14.756 "	14.482 "	00.274 "
Middle Arch.........	14.785 "	14.321 "	00.464 "
Superior Arch.......	14.387 "	13.964 "	00.423 "
Posterior Arch......	8.154 "	7.833 "	0.321 "
Masto-frontal Angle.	79.75°	76.50°	3.25°

From Table No. 10 may be drawn the following conclusions—namely :

1. The average base-line of the heads of 21 educated men is practically equal to the average base-line of the heads of 21 uneducated men.

2. The transverse diameter of an educated head is nearly five-one-hundreths of an inch greater than that of an uneducated head, according to Table No. 10.

3. Our measurements, as above recorded, show an excess of the antero-posterior diameter in favor of the educated head of nearly three-tenths of an inch.

4. The average circumference of the heads of 21 educated men is nearly sixth-tenths of an inch greater than the average circumference of the heads of 21 uneducated men.

5. In favor of the educated head, the excess of the posterior arch is over three-tenths of an inch ; the excess of the superior arch is over four-tenths of an inch ; the excess of the middle arch is nearly five-tenths of an inch, and the excess of the frontal arch is nearly three-tenths of an inch. The excess of the middle arch is greatest, and the excess of the frontal arch is least.

6. In favor of the uneducated head, the excess of the anterior arch is nearly two-tenths of an inch.

7. In the educated head the masto-frontal angle is greater on the average by 3.25°.

8. The greatest masto-frontal angle of both classes of heads is 82°.

9. The least masto-frontal angle of the uneducated class is 67°, and the least masto-frontal angle of the educated class is 77°. Some of the better of the uneducated were no doubt susceptible of a higher education, while many of them could not have been very much improved. Judging from the masto-frontal angle, the educated head has the anterior parts of the cerebrum most developed.

10. There seems to be an incongruity in regard to the anterior inter-mastoid arch ; but when it is remembered that the highest point of the anterior arch is over three degrees—on the average—lower in the educated head than it is in the uneducated head, and that this lowering must materially shorten the anterior arch, *the seeming incongruity vanishes ; hence the educated head affords larger measurement than the uneducated head.*

It is desirable to contrast the variations in the dimensions of these two classes of heads. This is done in the following table :

TABLE NO. 11.

Containing the variations in the dimensions of 21 educated and 21 uneducated heads, and the excess of variation.

Dimensions.	Variations : Educated.	Variations: Uneducated.	Excess.
Base-line...........	0.625 inches.	1.125 inches.	0.5 inches.
Transverse Diameter.	1.125 "	1.125 "	0. "
Antero-post. Diam'r.	0.75 "	1.125 "	0.375 "
Circumference	1.875 "	2. "	0.125 "
Anterior Arch.......	2.25 "	2. "	0.25 "
Frontal Arch........	1.5 "	2. "	0.5 "
Middle Arch........	1.25 "	1.5 "	0.25 "
Superior Arch.......	1.75 "	2.5 "	0.75 "
Posterior Arch......	1.5 "	1. "	0.05 "
Masto-frontal Angle..	5.°	15.°	10.°
		9.°	4.°

From Table No. 11 may be drawn the following conclusions—namely :

1. The variation of the transverse diameter of 21 educated and 21 uneducated heads is the same.

2. Twenty-one educated heads vary more in the anterior arch and in the posterior arch than 21 uneducated heads.

3. The base-line, the antero-posterior diameter, the circumference, the frontal arch, the middle arch, the superior arch and the masto-frontal angle, vary more in 21 uneducated heads than in 21 educated heads.

The masto-frontal angle certainly has some dependence on the growth and development of the brain—especially on the growth and development of the anterior portions of the cerebrum. The following facts support this statement—namely :

(1) An educated head has usually a greater masto-frontal angle than an uneducated head—as has been shown in the above recorded measurements : (a) Due to a continuously greater cerebral activity in the process of education ; or, (b) Due to an original better development of the cerebrum. In either case, the growth and the development of the anterior lobes of the cerebrum are from below upward, forward and downward. A better brain would accept a better education, and an ordinary brain would be the better on account of education. *A better education and a greater masto-frontal angle are usually associated.*

(2) It will be found by actual measurement that the *masto-frontal angle* of the very young has an average size somewhat less than that of the educated or the uneducated. The measurements of the masto-frontal angle in 22 infants and children are recorded in the subjoined table :

TABLE NO. 12.

Containing the sex, the age and the masto-frontal angle of 12 infants and children, from 3 to 60 months of age.

No.	Sex.	Months Age.	Masto-frontal Angle.
1	Female	27	71°
2	Female	7	70°
3	Female	17	70°
4	Female	4	68°
5	Male	36	72°
6	Male	17	70°
7	Female	7	75°
8	Male	15	72°
9	Female	12	71°
10	Female	11	71°
11	Female	3	69°
12	Female	36	74°
13	Male	4	63°
14	Female	60	69°
15	Female	42	65°
16	Male	22	75°
17	Male	13	75°
18	Male	19	72°
19	Female	3	72°
20	Male	39	76°
21	Male	21	73°
22	Male	41	77°

There are 10 males and 12 females in the above table. The youngest is 3 months and the oldest is 60 months of age; the average age is about 20 months.

In regard to the *masto frontal angle*: the *least*—in a male of 4 months—is 63°: the *greatest*—in a male of 41 months—is 77°; and the *average* of the 22 cases is 71.8°.

THE BRAZILIAN PESTILENCE.

While the world has stood aghast at the ravages of the plague in Southern Russia, a far worse pestilence has existed in Brazil. A correspondent of *The New York Herald* has investigated its causes and course. We are told that in a single province five hundred thousand persons have perished. In adjacent provinces fully three hundred thousand deaths have been recorded. The origin of the pestilence was in the drought, which prevailed during the winter of 1877, and continued through 1878. To the famine, was added the filth from crowds living in wretched huts. Then followed small-pox, in the summer, yellow fever—a curious paralytic disease, known as beriberi. A mistaken public charity intensified all these diseases. Cholera appeared, and finally a disease analagous to the Russian plague.

So long has the pestilence continued, that the people have become indifferent to their danger. The Brazilian government has expended over ten millions of dollars for the relief of the sufferers. At the last it is reported that slight rain has fallen in the interior, so that we may hope that the worst of the pestilence has passed. It can scarcely spread further, as it has destroyed nearly all the material on which alone it could travel. Reports from the Surgeon-General, U. S. Marine Hospital Service, confirm the foregoing in all essential particulars, as do accounts from other sources. All in all, it constitutes a picture incomprehensible in its graphic portrayal of human suffering, misery and death.—*Detroit Lancet.*

TRANSACTIONS

OF THE

ODONTOLOGICAL SOCIETY,

OF GREAT BRITAIN.

ORDINARY MONTHLY MEETING, April 7th, 1879.

EDWIN SAUNDERS, Esq., President, in the Chair.

The Minutes of the previous Meeting having been read and confirmed,

Mr. R. STRATON COLES, L.D.S., Ireland, of 3 Prince's Square, Plymouth, was balloted for and unanimously elected a Member of the Society.

The following gentlemen were proposed for election, viz.:

THOMAS ALBERT ROBERTS, L.D.S., 49 Charlwood Street, Belgrave Road, S.W., Resident.

EDWARD FOTHERGILL, L.D.S., 5 Elden Square, New Castle-on-Tyne, Non-Resident.

EDWARD GEORGE BETTS, L.D.S., 21 Freegrove Road, Holloway, Resident.

CHARLES D. COOK, M.D,, 133 Pacific Street, Brooklyn, New York, Non-Resident.

GEORGE L. PARMELEE, M.D., D.M.D., 25 Pratt Street, Hartford, Connecticut, Non-Resident.

GEORGE TUFTON MOFFATT, M.D., D.M.D., 196 Boylston Street, Boston, Non-Resident.

Mr. RANGER exhibited an upper denture to which an arm was attached to serve as a support for the nose in a case of syphilitic disease of the septum. The patient, a young man 22 years of age, contracted syphilis in India ; the disease ran a bad course, he was invalided home and admitted into St. Thomas's Hospital two years ago, under Mr. Croft. Mr. Ranger was requested to remove some suppurating stumps : he found that a portion of the hard palate and the whole of the septum of the nose had been lost by necrosis ; the skin and soft parts of the nose were perfect, but for want of support lay almost flat on the face. Some months later, Mr. Ranger extracted the remaining stumps and then fitted the patient with an artificial denture : to the upper part of this he attached a piece of stout gold wire, curved into a semi-dipsi and tipped at the free extremity with a small cone of gutta-percha. This could be introduced by the patient himself through the opening in the hard palate, and served its intended purpose in a very satisfactory manner, restoring the patient's nose to a very presentable shape.

Mr. OAKLEY COLES said that a case was recorded in Johnston's "Dental Miscellany," which Dr. Norman Kingsley, of New York, had treated in the same way. The only difference was in the shape of the spring ; Dr. Kingsley's had a double curve, so that the integument was supported at one point only. Mr. Coles thought that there might be some danger of ulceration from resting the whole of the weight on one point, as Mr. Ranger had done.

In answer to questions from the President and Mr. Hutchinson, Mr. Ranger said that the addition of the support was an afterthought. The patient had worn the plate for three months, when, at his earnest request, Mr. Ranger undertook the additional task of restoring the shape of his nose. He had worn the support for five months, and there did not appear at present to be any danger of ulceration. With regard to the shape of the wire, that must certainly depend upon the circumstances of the case. He felt sure that in the case under discussion, it would be impossible to introduce a support of the shape described by Mr. Coles. He had decided upon the best form for his patient only after a great many trials. He drilled a small hole in the plate and passed a probe through, withdrawing it and giving it fresh curves until he had obtained the best result he thought possible ; he then fixed the probe in position with wax, and withdrew it and the plate together. He had attached the plate by wires in the first instance, but found that they were not required ; it was retained very well by suction.

Mr. OAKLEY COLES then described a plan he had adopted for filling a large crown cavity in a molar tooth. Having excavated the cavity, he placed a little sponge gold at the bottom ; on this, in the center of the cavity, he placed a plug of gold wire, cut to the proper length and shaped like a dice-box. A rope of gold was wound round this and condensed, the rest of the cavity was then filled up in the ordinary way, and the whole finished off with the burr. By this means a more solid plug could be formed in less time and with less labor than by the usual methods of filling.

Mr. OAKLEY COLES then read the following casual communication "On a Tumor arising from the Root Membrane," &c.:

Tumors arising from the periodontal membrane are of comparative rarity, if we may judge by the literature that has appeared on the subject. They are alluded to in the briefest manner, only, in Tomes,* and but one case is cited by Salter † as having been observed by himself, whilst another case is reported by Sewell, ‡ and one also by Moon. § They are not specially referred to in Heath, || but an excellent account of these formations will be found in Wedl. ¶ This last-named author has apparently observed but few cases, however, and quotes chiefly from the paper by Magitot.** This author (Magitot) has observed and carefully recorded eighteen cases—ten occurring in the upper and eight in the lower jaw. Only one tumor was in connection with a temporary molar, in a child 3½ years old, the growth being epithelial in character.

The case of my own, that I have now to record, occurred in a lady aged about 49. The tooth to which the tumor was attached was a second

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* "Dental Surgery," 2d edition, 1873.

† Dental Pathology and Surgery," 1874, p. 167, from the "Transactions of the Pathological Society," Vol. V., 1854.

‡ "Transactions of the Odontological Society."

§ "Bryant's Surgery," 2d edition.

|| "Injuries and Diseases of the Jaws," 2d edition, 1872.

¶ "Pathology of the teeth," p. 316. Philadelphia, 1873. Translated by Boardman.

** Mèmoires sur les Tumeurs du Périoste Dentaire." Paris, 1860.

lower molar on the right side. The crown of the tooth was chiefly made up of a mass of amalgam that had been patched up and restored for nearly 20 years. The patient applied to me for removal of this tooth, as it was loose and a source of irritation to the side of the tongue. There was no sign of an alveolar abscess, but the age of the patient and the abrasion of the tongue caused me to take more than common care in extracting the tooth. The operation was a very simple one, and performed without the least difficulty; but I noticed a fleshy mass attached to the side of one fang near its apex. It was about 12 millimetres long and 6 millimetres at its greatest diameter It was firm in consistence, and attached to the membranes investing the fangs of the tooth, by a pedicle of nearly 3 millimetres in thickness. It occupied a position in the alveolus to the side, and slightly inferior to the apex of the fang, and resembled at first view, an ordinary abscess sac. The nature of the attachment of the tumor to the periodontal membrane, and its general consistence, induced me, however, to doubt the correctness of this conclusion, and I therefore put it aside in order to make a careful microscopial examination of its structure. This was, however, most kindly undertaken for me by my friend Dr. Klein, the eminent histologist of Bartholomew Hospital Medical College, who pronounced it to be a round-cell sarcoma, and I have the pleasure of submitting for consideration his report on the tumor, and two very carefully executed microscopical drawings that he has been good enough to prepare for me in order to show its minute structure.

DESCRIPTION OF PLATE.

Figure drawn under magifying power of about 450°.

a. Capillary blood vessels.

b. Trabecula of fibrous connective tissue. In connection with it are numerous fine connective-tissue bundles, taking a more or less curved course. Between these are numerous uni-nuclear round cells.

There is one other point of interest connected with the question, and that is the nature of the new growth and the tissue from which it grew—Rindfleisch has observered that the simple round-cell sacroma finds its favorite place of origin in "the periosteum and the sheaths of the nerve-centers."*

My reasons for bringing this case forward are as follows :—

1. According to the published records of such growths, they are very

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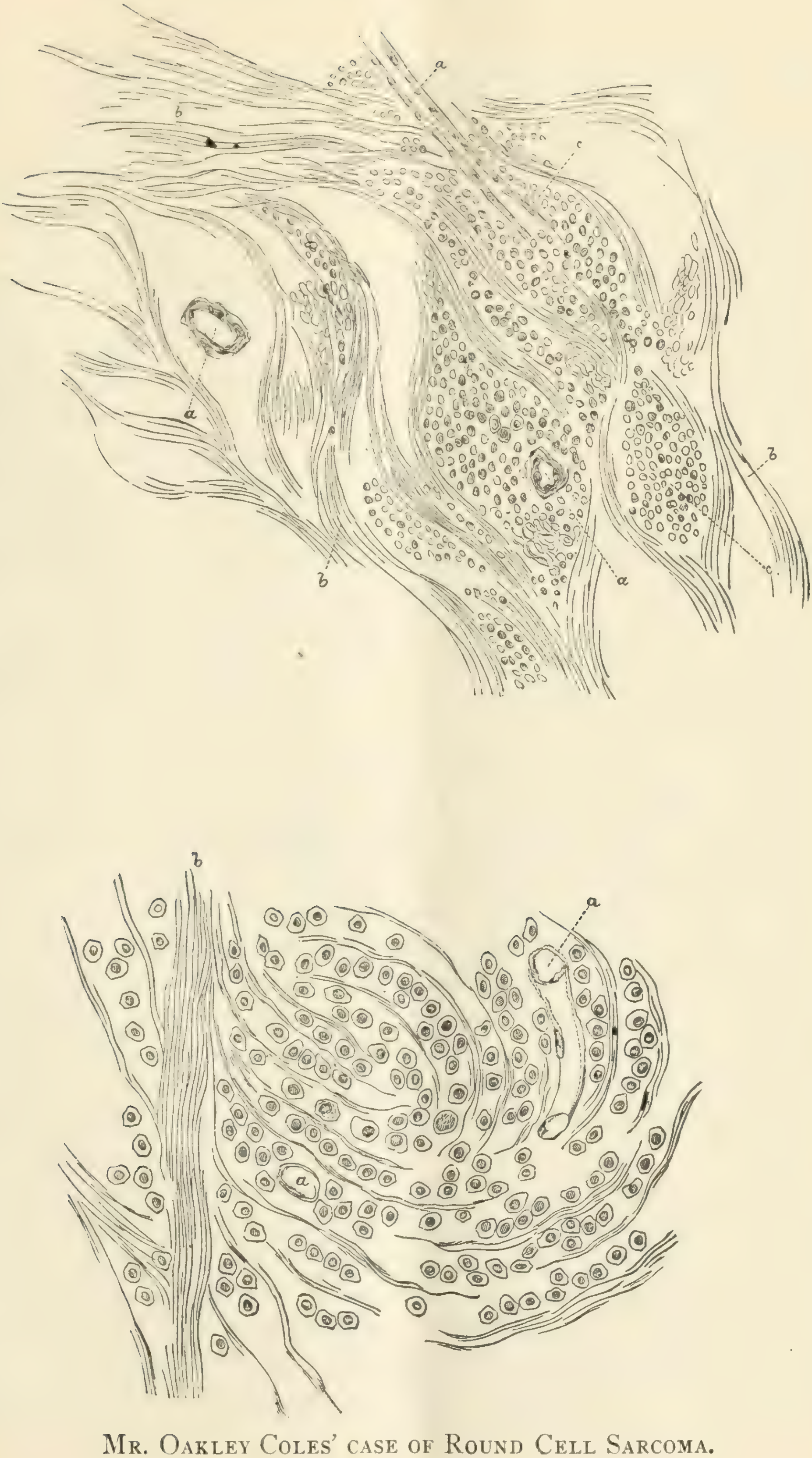
* "Pathological Histology," American edition, Philadelphia, 1872 p. 134.



Mr. Oakley Coles' case of Round Cell Sarcoma.

rare, and therefore the description of each additional instance in which they occur has a certain value.

2. Such a tumor, if left alone would, we may reasonably suppose, increase in size and become a source of serious anxiety to the patient, and hence its removal at an early date becomes a matter of clinical interest·

3. But my chief reason for drawing attention to the subject of "tumors arising from the root membrane" is, that I cannot help thinking they are of far more frequent occurrence than previous experience would lead us to expect. I cannot have been singular in my experience when I first regarded the specimen under consideration as an ordinary (though large) abscess sac, and it seems only reasonable to suppose that many similar specimens have been thrown aside without a microscopical examination having been made of their structure.

I believe that if all masses of new growth found connected with the fangs of teeth were carefully examined, we should, in the course of a few years, obtain some very important and valuable data in connection with the origin of the larger and more serious tumors of the jaws. I need not enter into a description of the varieties alluded to by Magitot and Wedl, as the works are in the Library of the Odontological Society.

DR. KLEIN'S REPORT.

The great mass of the tumor consists of trabeculæ of fibrous connective tissue of various thickness ; they cross each other and branch so as to form a plexus ; in the meshes of this tissue lie crowded together uninuclear round cells. These are in many places, especially where there number is not too great, arranged between fine bundles of connective-tissue fibres which are more or less curved, and may even possess an almost concentric arrangement. The cells vary slightly in size, are spherical or angular when pressed against each other, and each possesses a spherical eceentric nucleus. A few large blood-vessels are found in the large trabeculæ, and also capillary blood-vessels may be met with between the minute connective tissue bundles.

Mr. Coleman remarked that it would certainly appear that growths from the periosteum of the jaws were more common than they were formerly supposed to be. Epulis originated in the periosteum, and so did cystic tumors ; then Mr. Tomes had lately shown that hypertrophy of the gums took its rise from the periosteum within the margin of the sockets, and now Mr. Coles had called their attention to another form of growth, which had hitherto almost escaped recognition, but which there seemed good reason to believe might not prove to be very rare, if it was diligently looked for.

Mr. Hutchinson said that Mr. Coles' communication would certainly cause him to examine all growths on the roots of teeth more carefully than he had hitherto been in the habit of doing. It would be interesting to know whether the tumor described by Mr. Coles was at all allied to the ordinary epulis, which was also a sarcomatous tumor, but was generally of the spindle-celled variety.

Mr. Gaddes said that sarcomata were usually divided into three classes: the round-celled, the spindle-celled, and the myeloid. The round-celled variety, to which Mr. Coles' specimen belonged, was usually considered the most malignant of the three. Epulis he considered a most unfortunate term; so far as the etymology of the word went; any tumor of the gum, whether simple or malignant, was an epulis, and it was only from custom that the term had become restricted to a non-malignant growth. He should much prefer a nomenclature based on the anatomical structure of the tumor.

Mr. Coleman then read a communication from Mr. Robert Waller, of Cairo, describing his successful treatment of a case of perforation of the palate, due to gunshot injury. The subject of this short communication was an Egyptian gentleman of rank, who was injured by a bullet entering the mouth, penetrating the hard palate, and coming out just below the outer angle of the right eye, which mishap occurred about twenty-four years ago. After the wound had fairly healed, he had a bone plate made, covering the palate, and to which two incisor teeth were subsequently added. This appliance, though fairly serviceable, was never satisfactory, as the air which entered from the palate at the opening rendered atmospheric adhesion very imperfect. Upon coming under my hands, I found him very adverse to submit to a plaster impression being taken, as he told me he nearly lost his life from such a proceeding a short time before. The plaster became set in the fissure, and it took a medical gentleman three days to cut it out. To prevent the possibility of a recurrence of such an accident, I closed up the orifice in the palate with Stent's composition, so manipulating it as to allow it to remain *in situ* whilst the impression was taken, but also to permit it to be withdrawn with the plaster; and in this way I obtained an admirable model of the upper jaw, which now, *i. e.* at the time it came under my hands, was edentulous. In order to prevent air from entering at the orifice made by the bullet, and thus preventing suction, I carried a vulcanite stud through the same, to which was attached a soft rubber washer covering the nasal surface of the orifice. From the first, suction was perfect and articulation quite distinct, and my patient, I am happy to say, expresses himself in terms of the greatest satisfaction and gratitude.

Mr. OAKLEY COLES said that when he had to take a cast in a case of perforation of the palate he always covered the plaster in the neighborhood of the apperture with a piece of goldbeater's skin. This being very soft and pliable, a good impression of the margin at the opening could be obtained, whilst it effectually prevented the plaster from getting into the nose and causing the serious annoyance to which the Egyptian patient had been subjected.

Dr. W. H. MORISON said that whilst talking to Mr. Charles Tomes, a few days previously, that gentleman mentioned that he used shellac for root-fillings. Dr. Morison thought this objectionable, because it was impossible to tell where you were forcing the lac. The object was to close the apex of the root-canal, but you might not send the lac far enough, or you might force it into the cancellous tissue beyond, and in either case the result might be unsatisfactory. He, himself, together with many other practitioners in America, always used fine soft gold wire for the purpose. The thickness of the wire must be carefully adapted to the size of the root-canal. Having selected what seemed to be a suitable size, he fixed a length in a holder made for the purpose, and passed it into the canal. A little practice enabled one to judge how far it ought to go ; if it did not go far enough, a touch of the file might be sufficient to make it fit ; whilst if it passed beyond the apex, a peculiar sensation was felt, and the wire must be withdrawn and replaced by a larger size. If it seemed to fit properly, he withdrew it, notched it about a quarter of an inch from the tip with a sharp file, heated it, and dipped it into liquid gutta-percha or thin osteo. He then passed it again into the canal, and gave the holder a tap with a mallet ; if it now passed too far, it could be withdrawn ; but if it held firmly, a twist of the holder divided the wire at the notch, and the apex of the canal was securely closed. He then filled up the rest of the canal with osteo. He felt sure, from the satisfactory results which he had obtained from this plan, that the cause of the trouble which often followed root-filling must be due to the imperfect closure of the canal.

Mr. WEISS exhibited a model taken from the patient whose case he had related at the last meeting of the Society. The left lateral incisor had been transplanted into the place of the right, which was extracted for caries. This took place in August, 1877, and the tooth was still firm and perfectly healthy.

The President then called upon Dr. Field to read his Paper on Gold Fillings.

ON GOLD FILLING WITH COHESIVE AND NON-ADHESIVE GOLD.

As my subject for to-night is a very practical one, I shall treat it in a plain and practical manner by first stating one or two facts, or what appear as such to me ; secondly, by giving in detail two or three practical cases of gold filling.

I have been called an extremist, but I no not deserve the title ; for I do not confine myself to the use of either soft or cohesive gold exclusively, and am far from being a supporter of the *new* Departure, so called. I am willing it should go upon record, that if called upon to choose between soft and cohesive gold, the latter should be my choice, for with it alone more teeth may be saved and restored to usefulness in these modern times and modern teeth. With the generations past and passing, soft gold did a noble work, operators doing their very best under the most favorable conditions. But with conditions totally unlike, in the rising generation, cohesion is slowly but steadily coming to the front, and must inevitably prove itself the material of the future.

The avowed object of our specialty is the conservation of the dental organs by the best known means, and the conscientious selection of a remedy for each case, as the physician selects his remedy.

If this course be followed, we shall never have recourse to the forceps as the easiest way out of a difficulty (except as a *dernier resort*) ; this was the practice of our forefathers, and they were justified in it, for they practised according to their light ; but "what was good enough for them" should not be accepted by us as too good to be improved upon.

In the proper filling of teeth, the skill requisite for the successful manipulation of the material, whatever that material may be, the delicacy of touch called for in working upon the living tissue or tissues, gives ample opportunity for the display of professional skill and artistic taste ; but a desire to make such display of skill and taste should be tempered and modified by a thorough and conscientious appreciation of our duty to the patient, *i. e.*, to secure by the best possible means the greatest practical result.

As I have already intimated, this may sometimes be best accomplished by the use of gold, and frequently by plastic material. To-night I shall speak of gold only.

Our first imperative need, with any material, is solid foundations and supports, viz., enamel or dentine without flaw, and in no degree weakened by partial disintegration.

Let us prepare and fill two or three practical cases: 1st, a crown cavity in molar, with cylinders. This cavity will not receive the handle of the excavator, but is only discovered by the use of a Perry's explorer. The attention of the patient has been called to it by a slight pain while masticating; "only an occasional pain, you know." With a keen-edged excavator, or chisel and mallet, we cut away the enamel edges of central depression, as indicated by the dark lines, or slightly discolored enamel, and we find that which to the untrained eye was only a discolored fissure, is the mouth of a cavity in which the enamel is underlaid by softened dentine, generally in the directions indicated by the fissures, and forming, when prepared for filling, a crucial-shaped cavity.

I am aware that it has been the practice of many good operators to make only a simple round hole in central depression, and fill, leaving the terminal ends of fissures untouched. It is true that in some of the best teeth, *i. e.*, those of flint-like density of enamel and dentine, such fillings have done excellent service; but, as I have already hinted, we now see but few teeth having that class of tooth-substance; and in the teeth of this generation to leave such fissures unfilled is to leave canals, leading directly to the base of the filling, which will inevitably undermine the best work, but so secretly that in many cases the pulp may be involved before the danger is manifest.

Having, by the use of the chisel exposed the cavity, we will cut to the required depth with a drill in the dental engine, and follow this with a square-end fissure burr to secure vertical walls, and a flat base to cavity.

If at this stage of the preparation, we should examine the enamel margins with a glass they would present a very rough, ragged appearance. As I believe that these ragged enamel edges may account for many failures, we shall polish the margins of cavity by the use of a fine-cut finishing burr, and a stick with emery powder, both to be used in the engine.

Having now a cavity with strong vertical walls, and polished enamel edges, we shall proceed to fill it with gold in cylinder form.

As I am opposed to submerged operations, we shall employ every means to secure a dry cavity. In this, a simple case, the rubber dam, a boon to dentists, is not a necessity, as perfect immunity from the danger of flooding may be obtained by the use of a bibulous paper pad over the mouth of the parotid duct, Dr. Claude Rogers' shield and tongue-holder clamp attached to the tooth, and the saliva-ejector made by the same gentleman. These last-named instruments are indispensable to every dentist. We are now ready to introduce the gold, and shall make use of William's new style B cylinder, made of non-cohesive, smooth surface foil—as well made as the best handmade cylinders—and the folds of gold will slide upon each other without breaking.

This being a narrow cavity, we select a cylinder of proper length, and of a diameter to fill the posterior arm of cavity, carrying it well home with the foil-carriers, and condensing with the Kirby Pneumatic. This instrument is an invaluable aid in all gold work, but especially so in cylinder fillings. It will condense very large cylinders, or it may be used to place the gold securely against most delicate walls. I have contrived a simple arrangement by which the force of the blow may be adjusted with great nicety and not interfere with the prompt and rapid action of the plunger. The posterior arm of cavity is filled by successive cylinders, condensed as was the first. To fill the lingual arm is more difficult, *i. e.* with the ordinary points, as is also the labial or buccal arm ; but with points called R and L corkscrew foot instrument, the operation is made an easy one. These two arms are, like the first, filled flush with the central space ; thus leaving only the anterior arm open ; and this appears as a continuation of central space or cavity left after filling the three arms. Place two cylinders in this center, condense, and then fill anterior arm as the others, until their remains but a small pit, which may be filled with adhesive foil to act as a key to the filling.

The latteral pressure has been so uniformly hard that no surface-condensing will be found necessary, but we may proceed to cut away surplus gold by the use of finishing burrs corundum disks, and polish with rubber wheel and emery, and we have a filling which has occupied but a short time, with no canals left to undermine it, and one that no hand-pressure can surpass.

I have frequently been asked by students, "How should you fill a cavity in the distal surface of a molar?"

This certainly is a very difficult cavity, as ordinarily prepared, to successfully fill with any material.

The first step is to remove all suspicious marginal enamel, and, as in the majority of this class of cavities, caries has made considerable progress before the mischief is detected, one usually finds the coronal enamel undermined and proportionately weakened. On this account I should cut away this enamel as well, and thus give free access to the cavity.

After thus roughly outlining the limits of cavity, should I find its walls to be in very close proximity to the neighboring tooth, I should fill cavity with cotton and sandrach, and dismiss the patient for two or three days, leaving the dressing to act as a wedge to separate the approximating surfaces.

Space in such cases is of the first importance.

In the final preparation of the cavity, cut away doubtful dentine (*i. e.* all that is not up to the A 1 standard of the quality of tooth being operated upon) in every direction, save over the pulp, where for its protection all that is not softened and pasty may be left, as it is the best possible nerve-cap. When disintegration of the dentine has progressed so far as to suggest the necessity of protecting the pulp from thermal changes, I have found court-plaster to be as efficient and as easy of application as anything yet tried.

To return to the enamel margins. We must cut away all enamel which is unsupported by live dentine (except in the teeth of the first class, having the dense flint-like enamel), and belve the edges slightly outwards.

At the cervical margin we must cut away (it is imperative to do so) until we reach sound dentine, which will stand the closest tests of strong light, sharp instruments, and a magnifying-glass. We must never say, "I think that will do": we must know; for failure at this point is a failure of the whole.

With the aid of the magnifying-glass and a strong light, we may frequently detect a very fine white line extending across the cervical wall of dentine and enamel; early failure of our filling will be the penalty if we cease to cut until this mere hair-line of a defect is completely removed. After such cutting, it is of necessity to remove the thin wedge-shaped scale of cervical enamel; in that case the buccal and lingual edges, together with the exposed dentine, must be thoroughly polished. We are now ready for the smoothing of the margins of cavity, as before described. This being quickly accomplished, thanks to the engine, we proceed to prepare the cavity to retain cohesive gold.

With a very small drill I make a starting-point both in the buccal and lingual corners of cervical wall. This is merely a shallow flat-bottom *starting*-point, as distinguished from a retaining point, for we profess to retain our gold by contact. We also cut a very slight groove in the two vertical walls with a fine fissure burr from these starting-points to the crown ; in many cases a mere scratch with a diamond excavator suffices. After adjusting the rubber-dam over at least four teeth, we are ready for the gold, which has been prepared by an assistant. It is Kearsing's cohesive gold, which I believe to be the most cohesive, and uniformly so, now made ; R. S. Williams' stands next. Two sheets of No. 4 are folded twice, or cut into narrow strips two to four lines wide, about an inch in length. With a mouth-glass and one of "Ambler's assistants" in one hand, and Webb's electric plugger in the other, we introduce, and most thoroughly condense the gold into the starting-points and across the cervical wall ; thus connecting these points and forming the base of our filling. The gold is carried out to, and over the edge of cervical wall, and by a delicate application of the electric plugger is cut smoothly off even with the margin, thus leaving no overhanging edges of gold to annoy us in the finishing. To avoid injury to the enamel or dentine margins, care must be exercised to prevent the plugger-point coming into contact with them—always have gold intervening. Having a solid foundation, the cervical margin well covered, nothing remains but to build up the entire cavity, always exercising the same care as to contact of instrument with enamel, and to force the gold into direct contact with the walls. It is now a question of time and patience merely. An assistant may anneal the gold and place it in the cavity, by which the time of the operation will be shortened about one-fourth. The finishing of this class of fillings is not the least important part of the operation. Before removing the dam, we pass a safe-sided file between filling and the adjoining tooth. This is necessary only when the gold has been built in contact with the next tooth. The file is to be followed by a keen-edged cutting instrument, like a right-angled Howe's scaler ; with this we remove overhanging edges of gold, if any. There are various forms of double and finishing files, which are most useful in finishing the edges, also a dental engine file-carrier.

The next step is to secure, by the use of emery-cloth, slips of different width and different degrees of fineness ; No. 0 first, followed by No. 00, to secure a uniform surface of the gold, and to make it flush with the margins of the cavity. For the final polish either linen tape, pith crocus or rouge, or the soft rubber disk with the same powder, may be used. The approximal surface is thus finished, while the crown is to be finished in the usual manner, with burrs, corundum, &c.

After all this labor one may say, "*le jeu n'en vaut pas la chandelle,*" to which I should answer, that the satisfaction of having restored to a state of usefulness equal to the original, a tooth that was almost useless, and perhaps already condemned to the forceps—this makes the sometimes painful and tedious operation well worth all its cost. Such a cavity may be filled with amalgam ; but, believing as I do, that gold is the best material, on account of its non-shrinkage, its quality of cohesion—thereby capable of being made as one piece—its clean, bright color, I should never use the former except as a necessity. As to the difference of time and pains between gold and amalgam, both properly introduced, the latter would have little in its favor, while the best results with either or any material may not be accomplished, except one possess the skill and bility to practise our speciality as a speciality in a "skillful and efficient manner." We are told that such fillings fail ; so they do, and patients die after amputation ; but an occasional failure of a filling of this class does not condemn the operation any more than does the occasional death from the effects of amputation, or other surgical operation, condemn such operations. Even after a failure, the tooth can still be successfully filled. Again, such a filling, to be durable, must be perfect ; for, owing to its peculiar shape and position, it is subjected to a very severe test in the process of mastication, and a weak point will soon be made manifest by the falling out, *en masse*, of the gold ; while an amalgam, or soft gold filling, forced into a cavity of considerably larger internal dimensions than described by the margin of orifice, cannot fall out, even though defective, until decay has made such ravages that the enamel, having no support, crushes in, and then shows the tooth to be in an almost hopeless state—almost, I say, because there is still hope, for even on such a tooth, by the use of cohesive gold, a useful member may be built up.

We should have fewer failures if we better understood the capabilities of the material to be wrought with, and examined more thoroughly the tissue we have had to build upon and against. Even after we have done our best, and have as a result a perfect operation, so to speak, it may fail within an unreasonably short period, and from no other fault than the uncleanly habits of the patient. Perhaps we have failed to impress upon him the importance of the brush and the toothpick, by anything more positive than the conventional, "You must brush your teeth," conventionally uttered. This tooth, just filled, was once a strong, sound organ, and in spite of this it has been nearly destroyed by caries. We have restored the original contour of its lost parts, and except we can change the conditions which favored its decay, for opposite conditions, that is, uncleanliness for cleanliness of the oral cavity, caries will again attack the teeth, and a so-called *failure* is the result. Had this patient been properly instructed how, not merely to brush the teeth, but to *clean* them, and shown the best means of accomplishing it, and had he been informed as well of the absolute necessity of perfect cleanliness of the teeth—in a word, if we pursued any systematic prophylactic treatment in our practice, this cavity could have been prevented. That few practice this farther than to say, "Brush your teeth twice a day," without a thought as to whether or not the instructions are heeded—we have frequent evidence, and painful to witness. But I am wandering.

From my own limited experience and observation, the practical deductions which I think may be drawn from this too practical paper are three :—

First, that cavities with strong walls may be quickly and most thoroughly filled with cylinders. Second, that cohesive gold is the best material, in proportion as the walls are weak and need support ; and third, where a contour is desirable, or where the cavity extends below the margin of the gums.

DISCUSSION.

The President said Dr. Field had spoken of his paper as being "too practical :" this could not be. The subject was an eminently practical one and of vital importance, and it could only be satisfactorily dealt with in the way Dr. Field had chosen. Coming from one who had had such large experience of gold plugging, the paper was especially valuable, and the best thanks of the Society were due to Dr. Field for it. The only criticism he felt disposed to make was that Dr. Field appeared to make rather light of some of the difficulties incidental to gold filling. How, for instance, did he get rid of the sensibility of the cervical margin ?

Mr. COLEMAN said he gave his opinion with some diffidence, since there were several members and visitors present who had had larger experience of gold fillings than himself. He felt satisfied that large gold fillings must be done with adhesive gold, and with scrupulous care. With this material it was possible so to adjust the pressure as not to bear unduly upon weak walls ; with non-cohesive gold the success was in proportion to the size of the cavity. He thought that perhaps gold was now not as frequently used as it might be. At one time it was the only filling known, and was used for all cases, suitable or not; now we seemed to be in some danger of going to the other extreme. Among the numerous substitutes which had been and were now being from time to time discovered, the good qualities of gold were apt to be overlooked, and he thought they were indebted to those who, like Dr. Field, occasionally called their attention to the importance of this form of work.

Mr. Hutchinson said that in Dr. Field's description of the filling of a surface-cavity he had not clearly understood his mode of filling the anterior or mesial arm; as this was the point at which failure was most likely to occur, he should be glad if Dr. Field would explain that part of the operation a little more fully. With reference to contour work, he should be glad if Dr. Field could inform him how long a crown, built up with separate pieces of cohesive gold, and secured by retaining screws, would last.

Mr. Read asked Dr. Field what he had found the most convenient form of wedge for separating the teeth? He had the greatest difficulty, in some cases in finding a material which would act efficiently without causing intolerable pain to the patient.

Mr. Moon asked Dr. Field whether he did not find that it was necessary to sacrifice a good deal of the tooth in order to use the electric mallet. In dealing with a front upper tooth, for instance, it would be necessary to cut away the labial enamel, and he thought it was a pity to do this if by any means it could be avoided. The exhibition of cryselephantine work thus set up might be a lasting proof of the skill of the dentist, but he did not think it was becoming to the patient.

Dr. Field said, in answer to the President's question, that he had found that the sensibility of the cervical margin was greatly lessened by the use of the rubber dam; the dam must, however, be thoroughly well fitted—the presence of moisture, from a slight leakage, brought back the sensitiveness. If this was not sufficient, he applied a crystal of carbolic acid, and in very sensitive subjects it might be necessary to repeat the application several times. He thought he had described the filling of the anterior arm of the surface cavity sufficiently fully in his paper; it was filled last with a straight foot instrument. It was important to see that the walls of the mesial extremity were vertical. It was difficult to answer Mr. Hutchinson's second question off-hand. He had practised for some years in the United States, then in Geneva, and lastly in London, so that he had been unable to keep many of his cases in view for long. But it so happened that a gentleman for whom he had built up a gold molar six years ago, in Geneva, had lately called upon him and the work was still perfect. In answer to Mr. Read, he would reply that he used all sorts of material for wedges: hard wood, soft wood, rubber, cotton, wool, floss silk, &c., but he did find that some patients were extremely sensitive to the operation in whatever way it was done. Lastly, in answer to Mr. Moon, he would say, that in filling teeth with cohesive gold, it was absolutely necessary to cut away all weak parts. If the labial enamel was undermined, he should not hesitate to cut it away. The appearance of the patient must not be studied to the extent of risking the success of the operation, and, perhaps, the loss of the tooth.

The usual vote of thanks was then proposed from the chair, and carried unanimously. The meeting then terminated.

The following applications for Membership have been received by the Council :—

Mr. ROBERT WALTER, Cairo, Corresponding Member.

THOMAS CLEMENTS, 2 Colville Road, Bayswater, W., Resident.

CHARLES JAMES NOBLE, L.D.S., R.C.S., Eng., 1 Drayton Terrace, South Kensington, S.W., Resident.

NEW COATING FOR CASTS.

BY CHAS. P. ALKER, BORDEAUX, FRANCE.

One of the long recognized wants of the dental laboratory has been a suitable coating for plaster casts : a covering easy of application, that will not discolor the rubber nor deface the finest lines of the model, and which can readily be removed from the plate after vulcanization. Silex, collodion and tin foil, the favorite materials, have each their separate disqualifications. The chief inconveniences attending the use of the latter material are its difficulty of application and its liability to obliterate the minute lines of the cast. In partial compensation for these disadvantages, the rubber vulcanized upon tin presents a clean and bright surface, and this fact recently led me to undertake a series of experiments in hope of obtaining a preparation which should retain the good qualities of this material, without at the same time retaining its bad ones. My efforts were finally crowned with success. The coating, which is merely a mixture of tin and collodion, is inexpensive and so easily prepared that the merest novice in the laboratory will be able to succeed with it at the first attempt. To prepare it, reduce ordinary collodion with about three times its bulk of ether, and add powdered tin until the solution is well impregnated with the metal. The tin is the same that is sometimes used for coating plaster images. When properly mixed and applied with a brush, an even covering of tin is formed upon the model, so dense as to closely resemble tin foil, and so firm as not to be detached by boiling water or heat. A plate vulcanized upon a model thus prepared, is readily cleaned with a coarse brush and presents the appearance of having been made in a metalic mould. Whether this preparation would answer for vulcanizing soft rubber or not I have, as yet, not determined by experiment, but am sanguine that the operation would be satisfactory in its results. In thus surrendering my right of discovery to the public I am actuated solely by a desire to contribute to the general welfare of my professional brethren and assist them to lessen the annoyances of a patience-exhausting profession.

AMERICAN DENTAL ASSOCIATION MEETING.

The Local Committee of the American Dental Association report by their Chairman, Dr. Geo. L. Field, the following provisions for the 19th Annual Session of the Association, to be held at NIAGARA FALLS, Aug. 5th, 6th, 7th and 8th, 1879.

The Pavilion in Prospect Park has been engaged for the meetings. Each person attending will be charged one entrance (25 cts.) to the Park for the session.

Hotel charges reduced to $3.00 per day at the Cataract House and International Hotel. Half rates to all places of interest in the vicinity; one ticket good for the session.

Certificates entitling members to reduced fares over the Great Western and Wabash Railroads, can be obtained of Dr. Geo. L. Field, Detroit, Michigan, previous to August 1st. Reduced rates may be obtained over the Erie and N. Y. Central Railroads after July 15th, of Dr. F. M. Odell, No. 7 West 38th Street, New York.

Tickets will be issued over the Cincinnati, Hamilton & Dayton and Canada Southern Railroads, from Cincinnati to Niagara Falls, and return, for $10.

THOS. FILLEBROWN,
Chairman 1st Div. Ex. Com.

THE AMERICAN DENTAL CONVENTION

Will hold its 25th Annual Session in SARATOGA SPRINGS, on the second Tuesday in August (12th day) 1879. The Committee have made arrangements by which members will be entertained at the UNITED STATES HOTEL at reduced rates. Provision has been made for the exhibition of *dental materials and appliances.* Manufacturers and venders are invited to be present as exhibitors, &c.

The profession generally are earnestly invited to attend this session, which is expected to be one of unusal interest. *All reputable practitioners are eligible to membership.*

For further information address J. G. Ambler, 25 West 23d Street, New York.

J. G. AMBLER.
L. S. STRAW,
JOHN ALLEN,
C. F. RICH,
Committee of Arrangements.

ACONITE.

BY DR. F. C. EDDELMAN.

I have read with much interest and usually with much profit, the reports of Incidents of Office Practice by the First District Dental Society, but was greatly surprised not to say amused at one Dr. Dwinnelle's seeming trepidation in the use of Flemming's Solution of Aconite in a case spoken of by him in a meeting of Feb. 4, passed.

After having spoken of the use he made of it, which was by "dropping a few drops on a pad of cotton," and applying it to the outside, protecting it with paper so it would not touch the cheek any more than necessary, he says, "of course you recognize this as dangerous."

Then he goes on to state in detail how he stood with a glass of water in hand inducing him to rinse his mouth from time to time—telling his patient that he had as well *not* swallow it—how he afterwards gave him 15 drops of the elixir of opium, and went home with him and remained with him until evening was passed. Evidently he was much afraid the man would actually be seized with a spasm or exhibit some signs of aconite poisoning.

My first surprise is that Dr. Dwinnelle should be so "off" on the use of aconite tincture. My second surprise is that no notice of his great trepidation should have been taken in such a company. Let me call your attention to the fact that the U. S. Dispensatory lays down twenty or thirty drops as a dose of the offisinal tincture, which may be repeated twice or three times a day. I have been using this agent for the last 13 or 14 years on the mucous membrane, and you might almost say in all possible conditions. I find it one of the most useful agents in combatting inflammation of which I have any knowledge. And furthermore, I find it to be fully as useful in allaying pain. I even use it frequently in conjunction with chloroform, for the purpose of relieving pain in the sockets of teeth after extraction.

NOTES.

Dental Manufactory.

Nowhere is the progress made during the past ten years in dentistry so clearly seen as in the array of convenient, graceful furniture, and time-saving apparatus that in the modern dental office has displaced wooden furniture and the hand implements of the former time. A long article and an interesting one might be written illustrative of the truth of these statements. Our purpose now, however, is to call attention to the frontispiece, which somewhat inadequately represents our new factory for the manufacture of dental furniture and supplies.

We commenced factory operations in a small basement room in Green street, 20x 20 feet square, and with steam only to the extent of three horse-power. Then we went to Furman street, Brooklyn, where we engaged six-horse power and a room say, 60x90 ft. Next we took a building in Williamsburgh,40x80 and with separate engine room and office—a three-story building. Here we remained until again driven out by the growth of the business and the conviction that our chemical work should not be located permanently in the borders of a city. We then purchased the property shown in the frontispiece, located directly on the ocean, where iron, coal, acids and all heavy articles used by us can be delivered at a minimum of cost. On the same farm from which our grounds were taken, a Railroad Depot is located.

Here we have arranged on such a scale as will prevent necessity of further change of location, or increase of factory room.

This will be seen best by reference to the size of the four brick buildings, all very heavy, which occupy the center of the picture. Machinery building is 115x45 ft., and three stories high. Foundry and Laboratory building 123x45 ft. Engine and Machinery building, 60x40 ft. Storehouse, 60x40 ft., two-stories. The Japan house and office are of wood. The works are driven by a most excellent 80-horse steam engine, and lighted by gas made on the place.

New York State Law to Regulate the Practice of Dentistry.

Senate Bill, No. 84, published in full in our April number, page 166, became law, by the Governor's signature, June 20th, as we are informed by Dr. A. M. Holmes, Chairman of the Committee of State Society on Legislation.

New Jersey State Dental Society.

The Ninth Annual Session of the New Jersey State Dental Society will convene at the Sea Side Chapel, Long Branch, Wednesday morning, July 16, 1879, at 10 o'clock A.M., and continue in session three days.

OFFICERS, 1879.—Chas. A. Meeker, President, Newark ; F. W. Levy, Vice-President, Orange ; C. S. Stockton, Secretary, Newark ; W. H. Dibble, Treasurer, Trenton.

BOARD OF EXAMINERS.—J. Hayhurst, Lambertville; G. C. Brown, Mount Holly; C. W. Meloney, Camden; J. W. Cosad, Jersey City; F. C. Barlow, Jersey City.

EXECUTIVE COMMITTEE.—J. C. Clark, Jersey City ; C. S. Stockton, Newark; J. C. Hanks, Roseville; A. A. Pierce, Elizabeth; J. P. Geran, Matawan.

DELEGATES TO N. Y. STATE DENTAL SOCIETY.—C. S. Stockton, Newark ; G. C. Brown, Mount Holley.

DELEGATES TO PENN. STATE DENTAL SOCIETY.—J. Hayhurst, Lambertville; L. E. Reading, Trenton.

DELEGATES TO AMERICAN DENTAL CONVENTION.—G. W. Carmen. Chas. Dippolt, F. A. Levy, D. C. McNaughton, J. C. Hanks.

PROGRAMME.

1. Annual Address, by the President, Chas. A. Meeker, Newark.
2. "The Practice of Dentistry," J. Hayhurst, Lambertville.
3. "Little Things," T. B. Welch, Vineland.
4. To be announced, D. C. McNaughton, Jersey City.
5. "Our Mission," J. G. Palmer, New Brunswick.
6. "The Elevation of the Dental Profession to its proper Standard," F. W. Levy, Orange.
7. "Dentistry, as it was, and now is," J. Chadsey, Newark.
8. "The Use and Abuse of Mercury," J. W. Scarborough, Lambertville.
9. "Vulcanite vs. Metal Plates," Edwin Chew, Salem.

CLINICS.—Thursday and Friday mornings.

INFORMATION.—The "Headquarters" will be at the Ocean House, the proprietors of which have, as heretofore, generously offered accommodations to members and visitors in attendance at the meeting, at reduced rates.

The sessions will be held in the Sea Side Chapel (Rev. Dr. Wilson, Pastor), and will open promptly at 10 A. M., Wednesday.

Persons wishing to exhibit new appliances, materials, dental goods, etc., should notify Dr. J. C. Clark, Jersey City.

Members are especially urged to come prepared to report incidents of office practice, a portion of each day will be devoted to that order.

The Board of Examiners will convene at 2 P. M., Tuesday, July, 15th. Candidates for examination for license to practice, must be on hand prompt at that time, and bring with them, for deposit, a specimen of their mechanical work, and be also prepared to fill a tooth with gold, in the presence of the Examiners.

Those desiring to become members will hand their names to the Secretary, endorsed by two members of the Society, and must be present.

Ninth Annual Meeting of the S. C. Dental Association

Will be held in the office of the President, J. B. Patrick, D.D.S., on the 7th July, 1879, at 10 A. M., in Charleston, S. C. That afternoon will adjourn to meet in joint session with the Southern Dental Association and Georgia Dental Society next morning, July 8th, at Augusta, Ga.

All respectable dentists are informed that it is their privilege and duty to attend one or both of these meetings. Every inducement which can, will be afforded the profession.

OFFICERS.—J. B. Patrick, D.D.S., President, Charleston; I. H. Alexander, D.D.S., 1st Vice-President, Camden; A. P. Johnston, D.D.S., 2d Vice-Prsident, Anderson; B. H. Teague, D.D.S., Corresponding Secretary, Aiken; T. W. Boucher, Treasurer, Cheraw.

The State Board of Dental Examiners will meet at Charleston, in the office of Dr. J. B. Patrick, on the 7th July, 1879, at 10 A. M. Candidates for the practice of Dentistry in South Carolina must apply, at or before that time, to Dr. W. S. Brown, of Charleston. The attention of graduates in Dentistry, subsequent to February 23, 1875, is called to Sections 3 and 7 of an Act of the General Assembly, to regulate the practice of Dentistry in this State.

THE STATE BOARD OF DENTAL EXAMINERS.—W. S. Brown, D.S.S., President, Charleston; J. S. Thompson, D.D.S., Greenville; T. T. Moore, D.DS. Columbia; J. B. Patrick, D.D.S., Charleston.

G. F. S. WRIGHT,
Recording Secretary, Columbia, S. C.

Dr. Crawford W. Long, the Discoverer of Modern Surgical Anæsthesia.

At a meeting of the Medical Association of Athens, Ga., held February 24, 1879, it was resolved to request the Georgia State Medical Association, at its approaching session, to take steps to definitely determine the right of Dr. Long's claim to priority in the discovery of modern surgical anæsthesia; and also to request the State Association to bring the matter before the American Medical Association during its early session in Atlanta, in order that, "through this National Convention of medical men, Dr. Long's claim may be established throughout the civilized world."

Nothtng has occurred since we first read Dr. Sim's convincing paper on this subject, to change our conviction that Dr. Long was the real discoverer of the anæsthetic use of ether.

Nitrous Oxide.

From La Nature, Nov. 16th, 1878.

It may be said that the protoxide of nitrogen has entered into the daily use of a very large number of dentists who consume an enormous quantitity to the great advantage of their patients thus relieved of pain. M. Paul Bert has inquired whether this valuable agent may not, in surgery proper, find important applications as an anæsthetic. He has observed that under pressure the proxtoide of nitrogen acquires a very great energy of action. After a few inspirations, in a compressed atmosphere containing one-sixth of protoxide of nitrogen, a dog slept soundly. The heart beat reguiarly, and temperature remained normal. Excitation of the centripetal nerves produced reflex movements. The author has succeeded in maintaining this condition a full hour. If, at the end of this period, ordinary air is allowed to enter the lungs, the ordinary functions are re-established after the third inspiration. Sensibility returns, and also activity and vivacity. Nothing analogous to the *malaise* following the administration of chlorofoɹm is observed, and the author offers the simple reason that chloroform forms a combination with the principles of the blood, while the protoxide of nitrogen is simply dissolved in that fluid. In view of such striking results, it is to be hoped that hospitals will soon provide themselves with the apparatus necessary for the administration of nitrous oxide under pressure.

LIST OF
SECOND-HAND CHAIRS
FOR SALE.

No. 1.	S. S. White's Dental Chair No 1, covered with Leather, with foot-stool. Bellow's Head-Rest is practically as good as new, both in appearance and works	**$50 00**
No. 2.	Archer No. 3. covered with Red Plush, with a $20 foot-stool, crane and table, and Codman & Shurtleff's spittoon attached, a great bargain. Price	**45 00**
No. 3.	Harris Chair, nearly new, covered with Leather. Nickel Plated cuspador and spittoon attachment, high base. Price	**90 00**
No. 4.	Archer No. 3. Covered with Green Plush, with a $20 foot-stool. This Chair is new, and only shop-worn. Price	**85 00**
No. 5.	Archer No. 2. Green Plush, with a $13 foot-stool, good order. Price	**40 00**
No. 6.	Archer No. 3. Green Plush; foot-stool, crane and table, with instrument-cups in table. Bellow's Head-Rest, Plush considerably worn; will be sold complete for	**50 00**
No. 7.	Old Style Perkins Chair, large base, foot-stool attached; Red Plush; in good order, looks well, and is a bargain. Price	**50 00**
No. 8.	Whitcomb Chair. Green Plush; foot-stool attached, rosewood frame, handsomely carved, original cost $234, good order and looks well. Price	**65 00**
No. 9.	Perkins Chair No. 3, Green Plush; foot-stool attached, handsomely carved, movements perfect, Plush much worn. Price	**50 00**

JOHNSTONS'

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MASTICATION.

BY LOUIS OTTOFY, D.D.S., OF ST. LOUIS.

What kind of food should, and what kind need not to be masticated? is a question which now agitates the mind of physiologists and the dental and medical professions. Until now, it has been claimed, that all food irrespective of its chemical constituents, should be well masticated and thoroughly insalivated previous to deglutition, although some writers have made a slight distinction and mentioned some food that does not need as thorough division as other, before entering the stomach.

Let us first observe some of the lower animals, for example, the horse. We will notice that it masticates all its food thoroughly, and that in the whole animal kindom the herbivorous species masticate their food very carefully, while, if we take on the other hand, that domesticated flesh-eating animal, the dog, or other carniverous animals, we will observe that they swallow very large pieces of meat with impunity, and without the least mastication, although they are all provided with a set of organs for that purpose. If this was unnatural or unhealthy to the dog, instinct would teach him not to do it, as certainly as it teaches him to chew well and masticate all starchy and vegetable substances.

Man, who is both a carniverous and herbivorous animal, has always been taught to masticate all food well, so as to make it more acceptable to the digestive organs. There is now a general tendency to divert from that teaching and on a physiological basis which has only recently been observed and experimentally established.

The swallowing of large pieces of meat, by wild animals and beasts, was formerly accounted for by the fact that where these animals roam at large their prey must be rapidly consumed, so as to quiet hunger which often is intense.

If a business man would swallow a sufficient quantity of meat and then let his nervous force be exerted upon the stomach, instead of at once re-engaging in business, the result would be the same in his case.

The experiments which were alluded to, were conducted by scientific men on both man and animals, with equally satisfactory results. Meat chopped into small pieces—similar to a famous dish called hash—and fed to dogs, was not all digested, or assimilated, as was conclusively proven by the fact that large quantities of fibres of the meat were found in the excrements, while this was not the case with large pieces of meat which were fed dogs and which were swallowed wholly unchewed. This proves, conclusively, at least as far as the dog is concerned, that meat, or in fact all substances classed as nitrogenous, need not and should not be masticated.

In the case of the dog fed with chopped meat, portions of it, and sometimes large quantities, passed undigested, or only partially so, while in the other case all or very nearly all was digested, and most probably assimilated: only few of any of the meat fibres having escaped the action of the stomach.

Furthermore, we know that dogs that live in the country, and are fed more in harmony with their nature, with large chunks of meat, are, as a rule, more healthy and stronger than their companions of the same species living in the cities, and eating the more comminuted food. Probably we should except those dogs living about meat shops.

In describing the masticating process of the human animal, a few preliminary remarks concerning the action of the saliva may be made.

"The true function of the saliva is altogether a physical one. Its action is simply to moisten the food and facilitate its mastication, as well as to lubricate the triturated mass and assist its passage down the œsophagus." These are the words used by Flint to express the same idea which is imparted by Foster in the following words: "The chief purpose served by the saliva is to moisten the food, and so assist in mastication and deglutition." And these writers give the chemical action a secondary importance, while the opposite is true of Kirkes, Wundt and some others.

It is true that the part played by the saliva, in its action upon the digestion of starch and oleaginous substances, is one of importance—but not so great as was formerly supposed. Saliva contains a principle called ptyaline, which is an animal ferment, and has the power of converting the starch and glycogen contained in our food into glucose and sugar—which is but a slight molecular change; but the assistance offered thereby to the small intestines and pancreas is important, but by no means so great as formerly supposed. And it is not to be overlooked that all food containing starch, as all our vegetables do, should be masticated.

The process of cooking converts a great deal of the starch into glucose, and is therefore of considerable importance. It should always be urged that vegetables are to be well cooked.

The long and tedious mastication of vegetables by herbivorous animals is attributed to the fact, that in order to convert all starch into sugar a good deal of saliva is required, as no cooking has given any assistance in their case.

On the fats, saliva exerts but a very slight emulsifying action, and on the proteid class no action whatever.

Therefore, from the preceding facts, we arrive at the conclusion that the saliva has no action at all on any substances that are intended for stomach digestion, and that is the nitrogenous class, and all they want from the saliva is sufficient external moisture to pass down the œsophagus without irritating its mucous membrane.

Why should then man or dog masticate the meat it consumes ?

Certainly, all substances that are dry are required to be brought into a semi-solid state, or be permeated with moisture, so as to facilitate their passage into the stomach ; and this is specially so with crusts of bread and dry meats.

Crumbs of bread require but thirty parts of saliva to every hundred to have the full benefit of this fluid ; the crust, on the contrary, requires about one hundred and twenty to a hundred parts to be sufficiently moist, while roast meat needs about forty parts. Cooked meats usually contain in themselves sufficient moisture to be swallowed without insalivation.

Large pieces, or such as will conveniently pass, can be swallowed with impunity without the least fear on the part of the stomach, as it has been sufficiently shown that no action takes place in the mouth.

And, on the contrary, experiments on both man and animals verify the fact that meat chopped, or finely chewed, is not as well digested as that taken in large pieces.

As soon as the mucous membrane of the stomach is irritated by any substance, such as food, an abundant supply of gastric juice results, and a rotary motion ensues, which only ceases on the emptiness of this organ.

While this process is in progress, portions of digested food reach the lower end, and the undigested (saccharine and oleaginous) food passes on into the duodenum. In the stomach, of course, the nitrogenous elements have been digested, or, in other words, the proteids converted into peptones.

This pouring out of food at the pyloric orifice is not a constant phenomenon, but only occurs gradually and interruptedly. Now, if the meats, which are all nitrogenous, are swallowed chopped up and fine, and are in this condition in all parts of the stomach, would it not naturally suggest itself to the mind that this meat is liable to pass out with food undigested, and destined to be digested further on.

On starch and saccharine substances gastric juice exerts no influence whatever, they are only afterwards converted into uncrystallizable sugar. Fat is unacted upon by the stomach, it is simply liberated from the meat in which it may be entangled, or other substance, to which it is united. and is also divided into smaller globules, in which state it leaves the stomach, and is only emulsified by the fluids pouring into the small intestines.

A preparatory step is necessary for starchy food before it reaches the small intestines, and as the gastric juice exerts no influence upon starch, it is naturally clear that saliva must furnish this preparatory action.

The stomach retains a rotary motion until all food is past the pyloric valve, which is usually accomplished in the course of a few hours and depends upon circumstances. as the mental activity, occupation of the person, as also upon the nature and digestibility of the food, etc. It will be sufficiently clear from the facts here stated, that small particles of food destined to be digested in the stomach, will pass into the small intestines, while, if the meat taken is course and large, the flow of gastric juice is more copious, the rotary action of the stomach more vigorous, digestion of shorter duration, and there is no escape of undigested nutritious food. As the morsels or lumps must be digested from their external surface, al-the whole becomes permeated by gastric juice, it is inevitable that no particles of it can pass undigested.

Among men who are employed in business and have but little time to eat, dyspepsia is not uncommon ; this is due to their nervous state prior, at the time and after the meal : they are in a nervous state, hastily consume a meal, and then again employ their nervous force otherwise, not leaving sufficient for the stomach to perform its function. Their dyspepsia is in part, also, attributable to the use of partially cooked and unmasticated vegetable food.

The experiments which have been spoken of as performed on man, were similar to those tried on animals, and were followed by no ill consequences whatever. I tried the effects of unmasticated meat upon myself; sometimes having swallowed as large pieces of meat as I possibly could, with no ill effect, not even the uneasiness which is usually experienced when substances are swallowed which are difficult of digestion.

It is not at all the intention of the writer to impart the idea that all food should be swallowed unmasticated; vegetables should be invariably thoroughly moistened with saliva, but not so much as was formerly supposed to be necessary. It is also a good plan to move the large pieces of meat about the mouth so as to detect any hard or foreign substances, such as bones, etc., but it is also advisable to swallow them whole as not only complete digestion results, but also a healthy stimulation of the stomach, which is especially desirable in the weak and dyspeptic.

In conclusion, therefore, it shall suffice to say, that meat should not be masticated but swallowed in convenient pieces; vegetable food should certainly be masticated, especially if not well cooked, but not so much as was formerly supposed necessary, as it is a fact undisputed among physiologists that the function of the saliva is rather mechanical than chemical.

REPORT OF THE REGULAR MEETING OF THE N. Y. STATE FIRST DISTRICT DENTAL SOCIETY, HELD TUESDAY EVENING, MARCH 4TH, 1879, AT THE RESIDENCE OF DR. M F. ODELL.

Dr. J. L. Little was then introduced to the Society, and spoke as follows: I received a communication sometime ago from Dr. La Roche, through the Superintendent of St. Luke's Hospital, asking me to present the specimens of hare-lips which had come to my notice, to this Society.

About a year ago these three brothers came under my observation; they were all suffering from compound complicated hare-lip, the most exaggerated form of this deformity. Their history is as follows: mother English—father born in New Jersey, and, as far as I could ascertain, there is no hereditary deformity in the family. The oldest boy is 22 years of age, and was born with compound complicated hare-lip and cleft palate ; and, strange as it may seem, this boy was never operated upon—never fell into the hands of a surgeon until recently. Their next child was a girl, without deformity of any kind—next a boy, who is now 18 years old, with the same deformity as the first, only to a greater degree ; then two girls were born in succession, perfect ; next a boy, who is now 9 years of age, with the same malformation, and in addition a peculiar deformity of the hand ; then again two girls, perfect ; and, lastly, a boy with simple hare-lip. This one died a few hours after birth. In order to give you an idea of the condition of these boys, I will pass around these photographs and call your attention to these wax models or casts. I regret that I have not the patients to show you this evening.

This photograph shows you the oldest with his mouth closed, and this one with his mouth open. There is an entire absence of the hard palate and the intermaxillary bone, which you know exists as a separate bone in fœtal life, projecting forwards from the tip of the nose and containing one of the incisor teeth, and covered with a small flap of skin.

A few words in regard to the origin of this deformity. All of you are aware that this is caused by an arrest of development occurring very early in fœtal life, probably between the fourth and eighth weeks. At that time the upper maxillary bone and the upper lip are formed. The lip is composed of three portions, the marks of which can be distinctly seen in every perfect lip—the central portion being that part which is originally developed over the intermaxillary bone.

So this deformity must take place before the formation of the upper lip and jaw. There are various degrees of this deformity, and they may be more or less complicated. An arrest of union between the lateral and central portions of the lip form simple harelip ; if both sides are ununited we have a double harelip. Sometimes the fissure extends through the alveolar process, then again the cleft runs all the way back, and in some cases you will find the central portion of the bone pushing forward, and in these cases which I consider to be the most exaggerated form, the intermaxillary portion projects forward and is situated at the tip of the nose.

A few words about the operations which I have performed on these patients. In the first place, on the oldest boy, who was the first to come under my care, I performed the operation for closure of the hard and soft palate. The union was perfect and I congratulated myself that I had begun the series of operations so sucessfully. Eight or ten days after the removal of the sutures I found a very free discharge of mucus from the nasal surface, and on examining by a laryngeal mirror passed into the nostril I found that a line of ulceration had formed on the nasal surface of the new formed roof.

In operating I had separated the soft parts, beginning at the edges of the cleft and working toward the alveolar processes, so that when freed from their connection with the bone, which runs as you see in this cast, obliquely upwards, fell together, and even overlapped in the middle line so that I was obliged to remove a considerable strip from each side but before putting in my sutures I found by the mirror that granulations existed at the junction of the alveolar process and the soft parts, and in a short time contraction taking place the bond of union was torn apart and I lost all except about an inch of the hard palate. I think this result would not have occurred if I had made incisions along the sides of the alveola.

The next point consisted in closing the upper lip. This projecting piece of bone—intermaxillary bone—which in some cases can be forced back, in this case I was obliged to remove, so I performed the first operation by cutting off the intermaxillary bone and turning down the small flap of integument covering it and uniting it with a short suture to the nasal septum, thus forming a proper columna for the nose. The next step was to bring the upper lip together, which was done in the usual manner. There was perfect union, but not a very good upper lip. I sent the boy home ; he returned again in November of last year—and then I performed another operation, which I don't know as I can describe better than by illustrating with a piece of paper. It is called Nelaton's operation. There was an indentation in the lip, so that the vermilion border was almost up to the septum of the nose. Incisions were made on either side, cutting through the lip, but not removing any portion, and then the vermilion portion pushed down and the V incision brought together, so that we produced a straight union of the vermilion border. I thus gained a first-class upper lip. There remained a slight indentation, but so slight that no one would notice it. Now, this patient, after these operations, I sent home a few days ago with a result which I feel is somewhat unusual, for it has left the boy with an almost perfect upper lip. These casts were made before and after these operations.

The photograph of the boy was taken a few days before he left New York. The second boy, the youngest of the three, is represented in *this* cast, and, also, these photographs show side view and front view of the same patient. This boy went through pretty nearly the same course of treatment, except that after cutting off the projecting intermaxillary bone, which, in this case, contains two of the incisor teeth, and forming a columna, I found that it was not perfect, so I was obliged to dissect up the bit of skin and cut off another piece of the septum.

This boy has also a deformity of the hand—no third finger, and the little finger runs down a greater portion of the metacarpal bone; this gives him an almost parrot-shaped hand, and he can grasp with his little finger almost as firmly as he can with his thumb. Now, lastly, this the third case that I have here, is now under treatment in St. Luke's Hospital. I made an attempt to do all at one operation, but did not succeed as well as I did in the other cases. I turned down this projecting piece of integument; the lips have united very nicely and the columna is formed, but one side of it is very thick, and I shall have to perform another operation in order to present a proper columna for the nose.

I think the cases are remarkable. First, having three cases in one family. Second, in being allowed to go on to this age without having an operation performed.

Dr. Allen: I am a little puzzled to account for the difference between the girls and boys, but I would like to refer to a fact which has been closely observed in the Zoological Gardens in London, where an attempt has been made to raise young lions, and failed. It was found invariably they had cleft palates, and consequently they could not raise them. An investigation proved this. In Paris, where they attempted the same thing, as they could not draw milk from the mother, they succeeded in raising young lions with perfect upper arches, and the difficulty seemed to consist in this, that in London they fed the mother invariably on lean meat—no bones—consequently there was not enough of the mineral element given to the mother to form those arches perfect. But, in Paris, they fed the mother, while bearing the young, upon small animals, where they would get a sufficient amount of the mineral element in the system to form a perfect structure, and in that way they could raise in Paris perfectly developed young lions, while, in London, they failed entirely from not giving to the mother food containing the proper materials for forming the anatomical frame as it should be. In the case of this family, whether the mother had a fondness for more mineral element, or the food that contained it, while bearing the girls than the boys, I cannot tell: but perhaps the smaller frames of the girls, requiring less of this constituent than the larger frames of the boys, may account for it.

Dr. LITTLE: There is one other point which I intended to speak of. Those examining the cast of the small boy where the teeth project from the intermaxillary bone, will notice that the deficiency of the bone in the upper arch is much less than in the other cases. I think an operation there for cleft palate would be a successful one, but the father is ignorant, and refused to have the younger boy operated upon, because a hemorrhage occurred in the operation upon the oldest boy; it was very slight, and not at all serious, but the father heard of it, and he sent for the boy to come home, but the boy being of age, refused to go. The youngest boy, when he came, brought a letter from the father forbidding me to attempt any operation on the roof of the mouth. I tried, in various ways to persuade him, but finally received a letter from the gentleman, saying that if I could not do the lip without operating on the palate, to send the boy home; so I was compelled to forego that operation. With the other boy, the operation is impossible, the cleft is so wide.

Dr. M. F. ODELL moved a vote of thanks to Dr. Little for the presentation of these cases, which was unanimously carried.

Dr. N. W. KINGSLEY: I have seen hundreds of cleft palate and hare-lip cases, but never saw any as bad as those presented by Dr. Little, particularly the presentation of the intermaxillary bone, as represented in the photographs and casts. It reminds me of a case which I think I called attention to, in the Odontological Society. A patient was in my hands from Pittsburgh, having a similar deformity. In early life there was a double hare-lip, and a fissure of the roof of the mouth entirely through from the lips to the uvula. The surgeon, in operating on the lip, cut away entirely the intermaxillary bone and the soft external integument, and the result was he had no columna or septum for the nose, and there was a gap left between the nostrils at the top of the lip large enough to stick a finger through, and no hope of filling it up at that age. The boy came to me at twenty years of age, and all evidence of the intermaxillary bone was gone. Some two or three years since a young lady came into my hands who was operated on by Dr. Carnochan; the deformity was of this same character. There was a wide gap in the upper lip as in these cases, but the intermaxillary bone was not as prominent. Dr. Little's treatment of this case shows a very excellent operation indeed—far better than I supposed it was possible to make in such cases. I may say, so far as my own observation goes, it is just as good as it is possible for a man to perform. In regard to one point, which has been discussed here this evening, it has been playfully remarked that "girls are always right." In regard to these deformities, I think I see quite as many girls as boys, and every month I see new cases, and quite as many of them are girls as boys. Sometimes presenting fissure of the soft palate only, and sometimes fissure of both hard and soft palate. Sometimes with simple hare-lip, and again, as with these cases, a double fissure connecting mouth and nasal passages throughout the entire extent.

Dr. Little has broached one subject here which I hesitate somewhat in alluding to, because of a probable disagreement between us. I don't know why Dr. Little operated on the soft palate. I don't know why any surgeon performs Staphyloraphy in these days, except in one of those very rare cases where the two sides of the palate, in their relaxed state almost touch each other. In such cases there may be justification for operating upon the soft palate. I have seen the most beautiful operations of that description that any surgeon could perform, even to the union of the uvula, and I have seen the same operations slit open again, because of a failure to improve articulation. I will not detain the Society by going over the ground with my reasons again in detail. They have been stated so often they need no repetition. I believe it is a scientific impossibility to have perfect articulate speech as the result of a surgical operation upon a cleft palate, except in those extraordinarily favorable cases which I have described; and which these are not. These cases of Dr. Little's are the very extreme of the others, and the most unpromising of all. I almost wonder that the Doctor could have gotten tissue enough to reach across the fissure, and got a union as long as he did. The difference between Dr. Little and myself would be upon the one point; what benefit will the patient derive from any operation upon the soft palate?

Dr. Little: I would state I am not very familiar with Dr. Kingsley's apparatus. I have performed this operation a number of times,—not with the expectation of getting a return of voice—but in each case there was a decided improvement in the voice, and the only question in my mind is whether a natural palate—even a soft palate—is not better than an artificial one. It is a good while since I read or heard Dr. Kingsley speak of the benefits derived from the artificial palate. Many years ago I heard the Doctor present an apparatus at one of the medical societies here.

Dr. Kingsley: You cannot close up a fissure of that kind to any considerable extent without benefiting the *resonance* of both the nasal and buccal cavities, and necessarily, there will be some improvement to the voice and speech, but *perfect* speech can never result. I am reminded of being present with Sir Wm. Pollock, at St. George's Hospital, London, where he showed me a beautiful operation which he had performed for cleft palate. He handed the patient a paper and asked him to read : really, we could neither one of us understand a word he said, but it was a beautiful operation, nevertheless. To answer Dr. Little in one word, I can assure him there are patients in this city who are making addresses before public assemblies, and who are complimented upon their enunciation and the charm of their voices, and not one person in the audience knows that they are wearing an artificial palate. The secret of success lies partly in the appliance, and partly in the cultivation of the use of it. I have never seen a surgical operation in such cases which would confer on a patient the same benefit, but I do say if a surgical operation can be performed which will produce that result, it is better than resorting to artificial palates.

Dr. Little : I would like to ask Dr. Kingsley this question : Do they speak as well with the artificial palate, if it covers the hard palate, as they do when the hard palate is closed by an operation ?

Dr. Kingsley : I don't think there is any difference. The closing of the hard palate would be analagous to the wearing of a set of artificial teeth over the entire mouth, because with almost all artificial teeth they cover the hard palate. So far as the speech is concerned, it would make no difference whether there was an opening above that plate or whether there was formerly an opening which had been closed by a surgical operation, neither do I think it would make any difference with the resonating power of either nasal or buccal cavity. Surgery can be of much benefit in hare-lip cases by reducing the open nostril to a normal size. Such a reduction improves the tone of the voice, making it much less disagreeable, and in a measure benefits articulation.

Dr. Clowes : I mentioned the subject of Riggs' disease at the last meeting, because I wish to understand more in regard to it. Dr. Mills is the man who is supposed to understand it best, and I wish to learn from him. After I have heard him speak, perhaps, I may have something to say myself.

Dr. Mills : We would like to hear Dr. Clowes now.

Dr. Clowes : The so-called Riggs' disease I have seen a great deal of, but really have my doubts whether there is often a permanent cure for it. I have heard a great deal about cures, and have seen bloody hands and bloody gums, and a great deal of operating by and upon them, but I have not yet seen a radical cure. If I *could* see such a *cure* it would be a great satisfaction to me. Cannot Dr. Mills tell us of some permanent cure? For instance, the case which I saw at the clinic, last month. Was it cured? Dr. Mills calls it Rigg's disease, resulting from the striking of under teeth against upper ones. I think wedging had also something to do with it. Wedging is a prolific source of the disease, and this is one reason why I am opposed to wedging. Tartar is also a frequent cause; but the most general of all causes is a lack of nutrition in the parts. I had a case in my own mouth that attracted my attention more than any which I have seen in the mouths of others. About three years ago, I think, a wisdom tooth commenced to ache severely. It ached *so* severely that I supposed there must be a cavity in it. It was examined and proved to be perfectly sound. I had always been in the habit of brushing my teeth well and prided myself on the fact—but here was a sound tooth aching. Upon examination the gum was found detached from the neck of the tooth, and when a brother dentist applied what he thought good the aching was increased—so that subsequently it became necessary to employ a counteracting force. The disease, in my case, was undoubtedly from a lack of nutrition in the part—just the same as we sometimes behold in a tree which is generally flourishing, but away out on some distant limb shriveling and decay are seen. Why did it perish? Because its sap was arrested, its nutrition cut off; so with parts of our own bodies, if insufficiently nourished they will weaken and fail. There are many causes for this. The storms and vicissitudes of life overtake us and bear down with damaging effect, as the tempest, the tornadoes, and the frosts of nature, test the strength and vitality of the tree. If there is any permanent cure for the disease in this form I have not heard of it. Going back to my personal experience I will say that when I discovered where and what the trouble was, I felt sure a new lesson was in store for me; that there was some added knowledge in dentistry to be acquired; and I watched and waited for it. After trying the various methods of my brother dentists and getting no relief, I decided upon this course—to have a "safety pocket" made in my tooth, for the purpose of devitalizing its nerve. I was not encouraged by any outside approval, in fact, the idea was considered ridiculous. But as the toothache had been constant, and was wearing me out, it was necessary to do something, even though I stumbled in the act. I had suffered from that tooth for months and months, and the only relief obtained was by holding Jamaica rum in the side of my mouth, but even that, if continued too long, contained elements of danger! (Laughter). Arsenic was applied about eight o'clock in the morning, and before one in the afternoon the pain had ceased. After ten days (devitalization having taken place), I called on my dentist to have the nerve removed, but he had departed for the country in pursuit of health. In this dilemma I had to choose some other brother to carry on the work. I made my choice and submitted the case to his discretion and care. When I went to him I had no pain, when I came away my agony was intense! It is singular how little my chosen brother knew of the matter in hand! He did not have appropriate instruments with which to work, and having produced the pain tried this thing and that in a doubting and uncertain way to relieve it, and at my departure could offer nothing better than the groundless assertion that it would "soon wear away." Weeks after that I saw my dentist again and he inquired about my tooth. I replied, "Since you operated I cannot eat on that side—my grist-mill is crippled." He said, "It will come around all right." Nevertheless it did not come around right. Behold the position I was in! The application of arsenic had given me relief! The hand of one brother had given me peace—the hand of another had renewed my pain. I was in such a hopeless state that I resolved upon this: I said, "I will extract the tooth myself in order that I may fill it properly." Was not that a desperate position to be in? In extracting it I broke off little pieces from the roots. Of course, further progress in the desired direction had to be given up. But the lesson I had looked for was learned—the knowledge I desired was gained. My dentist had undertaken to *remove the nerve through too small an opening.* He had blundered in the dark and did not get out more than one-third of its amount. As I said, I extracted the tooth myself and laid it in my drawer. Some time afterward I was told what a wonderful operation this gentleman had performed for me; so I took the tooth from the drawer and said, "Yes, it was wonderful indeed! but here is the tooth!" I was right in thinking I could relieve that form of Rigg's disease. I call it "wolf in the gum." The lesson was presented to me and I learned it through tribulation. Now, whenever a trouble of that kind comes under my hands I can better the condition of my patient—at any rate I give comfort, and that is what I did not myself receive.

Dr. Mills: It is quite well-known by many that I have pretty thoroughly espoused the treatment of the so-called "Rigg's Disease." The history of the origin of this nomenclature, is not necessary for me here to repeat. You can become familiar with it by reading my published articles in the "Cosmus," five in number, in 1877 & '78. Now if I have any ability in this matter, it is because I have espoused it with the sincere belief that it is one of the *most* neglected and also the *most* important in dental practice: this is not the decision of a moment. My attention was called to this subject about eleven years ago, where I saw Dr. Riggs perform an operation in his office, and was impressed with its value. Many of us know what opposition this subject has met from the profession. My interest in it has grown from year to year: it is no longer a matter of *opinion*, with me; but simply *knowledge*, acquired by an unbiased disposition to get at the facts. We all will concede that a very large number of teeth are found in a degenerate condition, loosened and discharging from the sockets, etc. Dr. Riggs claims, and I have yet to see it disputed, that in his opinion, the reason that the treatment of these cases have not been *more* successful, by those who have given it their attention, is because they have failed to recognize what he terms the necrosed edge of the alveolar process, which is noticed in what he calls the second stage of the disease: when the process begins to give way to the inflammatory action, and there is left a debris,—or necrosed bone, which is necessary to remove, and here lies the point of success in "the thoroughness of the removal." We are familiar with cases which involve more or less of the destruction of the sockets. When I say that I believe that ninety per cent. of these cases are amenable to treatment, I wish to be understood rightly. What some call success, others do not: for instance: a case is presented with from ten to thirty teeth involved in all the varied conditions. Is it not better to make the effort to save *all* of them even though we may fall short of the whole number? So it is only in degree that Dr. Riggs, or myself would claim success, My own experience is this: the more I practice, the more confidence I have in the results: what I was able to do last week I find myself *better* able to do this. I have had cases where I have gone almost hopelessly to work, and to my utter surprise, after three months I saw results which I did not expect at first. I feel that I can now say, conscientiously and sincerely, that I know this treatment is a success, and is being proved in practice. For about thirteen months I was situated where I had an opportunity to see what I could of this treatment. I was stopping at the time in Hartford, very near Dr. Riggs' office: this was about four years ago. I made up my mind to satisfy myself what Dr. Riggs was doing in his daily practice: I called Dr. Riggs' attention to my own teeth,—which had been in the hands of some of our best men,—and he showed me by pressure, pus, exuding from between the molars and bicuspids of which I was unconscious. I had then a good deal of apprehension in regard to the treatment, partly from remarks of others, and I had not up to this time become much of an expert in using his instruments. I thought them rather formidable ; yet I put myself into his hands, believing him to be master, and my perfect confidence in him carried me through the entire operation of the thorough treatment of all my teeth with great satisfaction, and relieving me from the impressions received, that it was brutal treatment. The success was unquestionable ; as testimony of many who have seen them will prove. This clinic was so instructive to me, giving me a new impulse, and from that time I have been pursuing this practice very fully and constantly ; and here I must say, the whole thing is contained in a nutshell,—in knowing how to use Dr. Riggs' instruments. In my opinion there has been no instruments that will reach and remove this portion of the necrosed edge so expertly and thoroughly.

Dr. Atkinson tells us where necrosed bone in connection with an abscess is found, remove it and reduce it to *simple wound,* and nature restores it to health ; this is *common sense.* Now the conditions in the "so-called Riggs Disease" are the same. The same treatment will produce the same results. Dr. Atkinson has substantiated to my mind Dr. Riggs' observation. Dr. Garretson, of Philadelphia, has done the same ; he has stated in his "brochure" titled, the use of the Dental Engine in Surgery (published in latter part of 1877)—Freshen the circular edge of the alveolar process.

Here, allow me to state an extreme case, which has been in my hands for the last three months, and has been a fortunate one for my reputation. A prominent physician of Brooklyn consulted with me, in the interest of a lady patient—in whom he expressed more than an ordinary interest—and said if there was value in this treatment he would like to have her have the benefit of it. The lady came—age about thirty-eight years, nervo-sanguine temperament—a very cultivated lady of good ancestral record. Upon examination of her mouth I found twenty-nine teeth, many of them quite loose, sockets discharging pus freely, gums very much congested. She was in a sadly æmemic condition, in low spirits, poor appetite, much nauseated in the morning, copious discharge from the mouth upon the pillow at night—causing her to use a towel for protection. A state of things which were really distressing. This lady had passed through a remarkable mental disturbance ; she had suffered by the sudden loss of her husband, child and mother, in five weeks, which well-nigh crushed her. (This was some two years previous to my seeing her.) She told me that about that time she began to notice a very marked change in the condition of her teeth. These statements help to confirm those made by some English dentists of the Odontological Society of London (see Monthly Review of Dental Surgery, May and June, 1878), regarding the effect of mental strain in this disease. This lady asked me what I thought would be result of this treatment in her case. I could only promise, from my experience, to bring about a decided improvement. I have treated the case, and the best testimony that could be given of the results, would be a statement by the lady herself—to use her own words—"She was as good as new." The improvement in her mouth has been remarkable, her physical condition decidedly changed, appetite returned, has grown fleshy, and has red cheeks again: the condition of some of the teeth have improved more than others. Several of the lower anterior teeth I ligatured; quite a reaction took place after about eight weeks, with two incisors and a cuspid, which, at first, I could hardly account for; but finally decided it was caused by some change in the position of the ligature; but all soon come right again after readjusting the ligatures. In this case I prescribed tonics.

I am very well satisfied, in my own mind, that one year's time will show an improvement greater than my most sanguine expectations would have allowed me to hope for when I began.

Dr. ODELL: I don't think the virtue lies in the instruments used by Dr. Riggs. I think to Dr. Riggs is due a great deal of credit for opinions he has advanced. The treatment of this kind of difficulty, which I scarcely yet recognize as a disease but only as a condition, is almost as old as the study of dentistry. Dr. Dunning had very advanced ideas on this subject, when I was yet a dental college-boy; and we had a case there of a Scotchman, where it took me four weeks, four days in the week, and four hours each day, to cleanse a set of teeth, because they were so loose that I was obliged to hold the teeth with the fingers of one hand, to prevent pulling them out with the scalers, and they all became firm during that *short* period of operating: I saw him two weeks after, and he had not a loose tooth in his head: and this was accomplished simply by the faithful cleansing of the teeth from their investment of salivary calculus. My opinion on the matter from my subsequent practice is about this; in order to get a reproduction of process we must do what Dr. Riggs has said; we must go back to healthy tissue, and induce what surgeons call a benign inflammation; now this is not original with Dr. Riggs, but is as old as Surgery—nay, as old as Medicine! But Dr. Riggs is entitled to the thankful consideration of the dental profession for calling the attention of the profession to the fact "*that the same surgical treatment which holds good for other parts of the body, succeeds when practiced upon the alveolar borders.*"

Now how shall we incite the tissues to rebuild? We must get Dr. Clowes' "pocket," without the "safety." When you see that you are really getting deposition of proto-plasm when you see the impression of your finger upon this deposit, then you have a nice, beautiful shiny deposit or growth, which we used to consider, perhaps as pus, when it first made its appearance, and thought we were treating the case best when we cut it away; but if we will take care of that substance a few days, we will, more than likely, get reproduction of process; we may get a partial reproduction, and then retrogression; if so, try again, don't give up when your patient gets discouraged. I had a case here, lately—an elderly Jewess—I had no more hope of doing anything for that lady than anything in the world! I went on the principle I would in medicine; if the patient is sick do your best; "as long as there's life there's hope." In this case I did not lose any teeth, on the contrary they are all quite firm, and they came to me quite loose.

In that case I could not hope to do by instruments what I wanted to do. I did the best I could with instruments; then I touched with iodine in order to stain any tartar that might be there. Anything that you see taking the stain of the iodine, next time they come you can remove—usually with instruments: I did not remove the little spiculæ of tartar with instruments, I used sulphuric-acid, and next day it looked like a very sore mouth; but on touching it I found I had an exudation which would stick to the finger. I then employed a little chip (such as is used for lighting the gas), and wrapped it with a little cotton (first wetting the wood to soften it), and smeared it with glycerin and tannin, and laid that between the teeth and lip, and—she vomited it out! and a great lot more that *I* did *not* lay in there; finally, I guess I got her cleaned out—at all events I put in the chip, and she went away and wore it: and the next day I removed it, cleansing and replacing with a new one, and in three days the tissue had grown up; the thickened margins of gum-tissue seemed transparent; there were lines plainly visible through it, radiating from the tooth to the mucous membrane. I bade her not use any stiff brushes, but clean her teeth with a stick. She did as I told her, and the result is, those teeth are firm. Now, instruments could not have gone where I had to go, at the proximate surfaces, near the apices of the roots, without *much* pain and *some* risk.

DENTAL LAW OF THE STATE OF NEW YORK, SIGNED BY THE GOVERNOR, 20TH JUNE, 1879.

Although this law has been published before in our journal, its importance to the many practitioners of our State, makes it, in our judgment, expedient to insert it again. We also mail a copy of this number of the *Miscellany*, free, to each dentist of the State, not now a subscriber, and will not resent it if in return for the attention they send us a subscription for the whole or for the unexpired part of 1879. This knowledge may be worth the subscription price of the journal many times over to some who would not otherwise get this information in season to avail themselves of the provisions of the law, but it is only a single instance of many occurring constantly which show the advantage of the periodical to a dentist in active practice.—ED.

AN ACT

To regulate the practice of dentistry in the State of New York.

The People of the State of New York, represented in Senate and Assembly, do enact as follows :

SECTION 1. It shall be unlawful for any person to practice dentistry in the State of New York for fee or award, unless he shall have received a proper diploma, or certificate of qualification from the State Dental Society, or from the faculty of a reputable dental or medical college, recognized as such by said Society ; provided that nothing in this Section shall apply to persons now engaged in the practice of dentistry in the State of New York.

§ 2. Any person who shall practice dentistry for fee or reward in this State, without having complied with the regulations of this Act, shall be deemed guilty of a misdemeanor, and upon conviction thereof shall be fined not less than fifty, nor more than two hundred dollars for each offence. All such fines shall be paid into the treasury of the county where such conviction shall have taken place, for the benefit of the common schools of the county.

§ 3. Every person practicing dentistry within the State shall, within sixty days after the passage of this Act, register in the office of the Clerk of the county where located, in a book to be prepared and kept by the Clerk for that purpose, giving his name, office and post-office address, and the date of such registration; and shall be entitled to a certificate of such registration upon payment to the Clerk of a fee of fifty cents.

§ 4. All acts or parts of acts inconsistent, or in anywise conflicting with the provisions of this Act, are hereby repealed.

§ 5. This Act shall take effect immediately.

FORM OF DENTIST CERTIFICATE FROM COUNTY CLERK.

COUNTY CLERK'S OFFICE,
City and County of New York.

I, , Clerk of the City and County of New York, do hereby certify that , in compliance with the above act of the Legislature of the State of New York, hath this day duly registered his name and address in a book kept in this office for that purpose.

In witness whereof I have hereunto subscribed my name
[L. S.] and affixed my official seal, this day of
A. D., 1879.

Clerk.

SOME MEASUREMENTS OF SKULLS AND HEADS, SHOWING THAT DEVELOPMENT, GROWTH AND EDUCATION INCREASE THE VOLUME OF THE ANTERIOR PARTS OF THE CEREBRUM—INDICATED BY THE MASTO-FRONTAL ANGLE.

BY J. S. WRIGHT, M. D.

(*Continued from page* 223.)

CONCLUSION.—*The masto-frontal angle increases in size as the brain grows and develops.*

I introduce here the measurements of three small skulls. The *first* from an infant, one year of age: the *second* from an infant at birth—born at full term; the *third* from a fœtus born at the end of the seventh month of utero-gestation.

The occipital bone of No. 1 is absent—hence the posterior arch could not be measured. It would probably be about 6 inches.

TABLE NO. 13.

Containing the dimensions of three undeveloped human skulls, in inches.

No.	Base-line.	Transverse Diameter.	Antero-post. Diameter.	Circumference.	Anterior Arch.	Frontal Arch.	Middle Arch.	Superior Arch.	Posterior Arch.	Masto frontal Angle.
1	3.	4.5	5.5	16.25	8.75	10.125	10.625	11.		70°
2	2.375	3.75	4.5	13.5	7.25	8.125	8.75	9.375	5.5	65°
3	2.	2.75	4.	11.5	6.5	7.125	7.375	7.625	5.	60°

TABLE NO. 14.

Containing the dimensions of seven Indian heads from Central South America.

No.	Base-line.	Transverse Diameter.	Antero-post. Diametor.	Circumference.	Anterior Arch.	Frontal Arch.	Middle Arch.	Superior Arch.	Posterior Arch.	Masto-frontal Angle.
1	4.875	5.625	7.25	20.75	11.	11.125	11.75	12.5	8.	68°
2	4.875	5.625	6.75	19.75	10.5	11.	11.5	12.	8.	69°
3	4.875	5.125	7.	19.75	10.25	11.	10.875	11.5	7.5	66°
4	5.25	5.125	7.125	20.875	12.25	12.25	12.125	11.75	7.75	70°
5	5.	5.25	6.625	19.25	11.	11.5	11.5	11.	7.25	69°
6	4.625	5.	6.625	19.25	11.	11.25	10.75	10.875	7.25	68°
7	4.625	5.375	6.875	19.5	10.5	11.	11.125	11.5	7.5	69°

Two conclusions may be drawn from Table No. 13, and what has previously been stated. namely :

1. The anterior arch will increase in size more in proportion than the posterior arch during growth and development. That is, *the human cerebrum tends to develop forwards.*

2. It may be expected that the masto-frontal angle of the new-born will increase in size from birth to maturity about 15°, thus *giving a greater relative capacity to the anterior part of the cerebral cavity.*

Compare skull No. 2 of Table No. 13, with skull No. 21 of Table No. 1. No. 2 is the skull of an infant at birth ; No. 21 is the skull of an adult. Measure from the *centre point* on the mastoid process backward as far as the occiput, and forward in a straight line as far as the supra-orbital ridge. The distances of No. 2 are : backward 2.5 inches—forward, 2 inches. The distances of No. 21 are : backward, 3 inches—forward, 4.125 inches. In skull No. 2 the distance backward is proportionally greater, and in skull No. 21 the distance forward is proportionally greater. Suppose skull No. 2 to grow to be as large as skull No. 21, *it must grow more rapidly forward than backward.* On the supposition that the expansion of the anterior cerebral lobes takes place in every direction, other things being equal, *it would take place in part downward, and this would increase the size of the masto-frontal angle. And this result we would expect on simple physical principles ; for the base of the skull in front is composed largely of thin plates of bone, that would yield as readily as the skull-cap before the continuous pressure of the developing brain.*

It may be noted that the cerebellum grows faster than the cerebrum ; for the ratio of these two parts of the infant-brain, 1:14, changes in the adult-brain to a ratio of 1:8.6. And it may be noted that the anterior arch increases more in size during growth than the posterior arch. Hence the cerebellum must increase in size downward and upward. As the cerebellum grows, (1) The tentorium must heave up somewhat more, and (2) The base of the skull, from the posterior arch to the foramen magnum, must "bulge" somewhat more. An adult needs a proportionally greater cerebellum than an infant.

3. I have measured 7 Indian heads brought from Central South America. They are said to be the heads of cannibals, who are called Parrintintins, and dwell above the sources of the Tapajos River. These heads are war-trophies. They are preserved by the smoke of an indigenous root called *carrocopowpow*, and have decorations in their ears, eyes and mouths. They have long tangled hair, which is shaven about

as far back as the middle arch. The hair and the ear-decorations made the measuring difficult; yet, with care, I have been able to fix upon the approximate dimensions recorded in Table No. 14.

TABLE No. 15.

Containing the least, the greatest and the average dimensions of the seven Indian heads in Table No. 14, also the difference of the least and greatest dimensions.

Dimensions.	Least.	Greatest.	Average.
Base-line............	4.625 inches.	5.25 inches. 4.625 "	4.875 inches.
Difference		0.625 inches.	
Transverse Diameter.	5 inches.	5.625 inches. 5. "	5.303 inches.
Difference		0.625 inches.	
Antero-post. Diam'r.	6.625 inches.	7.25 inches. 6.625 "	6.892 inches.
Difference		0.625 inches.	
Circumference.......	19.25 inches.	20.875 inches. 19.25 "	19.875 inches.
Difference..........		1.625 inches.	
Anterior Arch.......	10.25 inches.	12.25 inches. 10.25 "	10.928 inches.
Difference...........		2 inches.	
Frontal Arch........	11. inches.	12.25 inches. 11. "	11.303 inches.
Difference...........		1.25 inches.	
Middle Arch........	10.75 inches.	12.125 inches. 10.75 "	11.375 inches.
Difference...........		1.375 inches.	
Superior Arch.......	10.875 inches.	12.5 inches. 10.875 "	11.589 inches.
Difference..........		1.625 inches.	
Posterior Arch......	7.25 inches.	8. inches. 7.25 "	7.607 inches.
Difference..........		0.75 inches.	
Masto-frontal Angle.	66°	70° 66°	68.42°
Difference..........		4°	

From Table No. 15 may be drawn the following conclusions—namely:

1. The base-line, the transverse diameter and the antero-posterior diameter of 7 Indian heads have the same variation, in this respect corresponding to the heads of 21 uneducated men. The variation of the latter is 1.125 inches; the variation of the former is 0.625 of an inch.

2. The circumference and the superior arch of 7 Indian heads have the same variation.

3. The anterior arch of 7 Indian heads and the anterior arch of 21 uneducated heads have the same variation.

4. The variation in the masto-frontal angle is only 4°, while the average masto-frontal angle is 68.42°.

TABLE No. 16.

Containing the average dimensions of 21 educated and 7 Indian heads, and the differences.

Average Dimensions.	21 Heads of Educated.	7 Heads of S. A. Indians.	Differences.
Base-line............	5.38 inches.	4.875 inches.	0.505 inches.
Transverse Diameter.	6.053 "	5.303 "	0.65 "
Antero-post. Diam'r.	7.708 "	6.892 "	0.816 "
Circumference.......	22.613 "	19.875 "	2.738 "
Anterior Arch.......	13.7 "	10.928 "	2.772 "
Frontal Arch........	14.756 "	11.303 "	3.456 "
Middle Arch........	14.785 "	11.375 "	3.41 "
Superior Arch.......	14.387 "	11.589 "	2.798 "
Posterior Arch......	8.164 "	7.607 "	0.547 "
Masto-frontal Angle..	79.75°	68.40°	11.35°

From the above table may be drawn two important conclusions—namely:

1. There is a notable difference in the anterior, frontal, middle and superior arches of these Indian and the educated heads. The educated heads are relatively large in these arches.

2. There is a notable difference in the *masto-frontal angle* of the two classes of heads: *The educated head has an excess of* 11.35° *over the Indian head. Hence the educated head contains a preponderance of brain in the anterior parts of the cerebral cavity.*

Some important facts in regard to cerebral development may be mentioned here:

1. In early life the cerebrum is relatively of large size when compared with the cerebellum, the average ratio being as 14 to 1.

2. In savages the middle cerebral lobes—so called—are relatively of large size, when compared with the anterior cerebral lobes, or the posterior cerebral lobes.

3. In idiots the cerebrum is relatively of small size, when compared with the cerebellum, the ratio being as 4 to 1, and even as low as 3 to 1.

4. In the adult, the extent, the thickness and the *quality* of the cortex cerebri correspond to the intellectual capacity—gold is better than silver, water is better than wine, and bread is more edible than stones.

The size and form of the human head afford important indications as to the intellectual capacity. It appears that the direction and the extent of the growth of the cerebral lobes from the vicinity of the optic thalami and the corpora striata have very much to do with the manifestation of intelligence. The parts of the cerebrum in front of the base-line are the most essential: and, so far as size is concerned, the greater volume of the contents of the anterior part of the cerebral cavity denotes a higher activity and a greater capacity. And by this it is admitted that the mere volume of the *cranial* cavity is not an accurate index of *cerebral* capacity; and that the volume of the *cerebral* cavity does not give exact information in regard to intellectual activity. But the volume of the cerebrum in front of the base-line does, in some respects, correspond to a better development and a higher culture, as the facts enumerated above tend strongly to show.

The weight of the encephalon cannot be made an absolute standard of comparison, even when it is remembered that this weight often varies as the weight of the body varies: and the weight of the cerebrum alone cannot be made a standard of comparison: for a comparison of weights is not a comparison of cerebral activities. To be sure, the weight of the brain—*other things being equal*—would be some indication of capacity. But the brain is made up of different parts, having different functions. And the difficulty of determining the volume and weight of one of these parts, the cortex cerebri, has already been pointed out. The weight of diseased brains and uneducated brains has been above the average. This only shows a great bulk of poor material. On the other hand, some of the best work the world has ever seen has been done by brains of average weight. The cerebra may have been relatively large; but of this we have no record. But while the cortex cerebri of the adult brain is thicker and more convoluted than it is in the infant, the aged, the savage and the idiot, it must all times have the quality that comes from use. A physical illustration will aid our conceptions here. A bar of soft iron and a bar of soft iron magnetized may be equal in volume and have the same weight: one can lift nothing—the other can lift many times its own weight of iron. The magnet has a special property which the bar of soft iron has not; and that, to be sure, makes a very great difference. *The educated cerebrum has a special property which the cerebrum of the infant, the savage or the uneducated does not possess, and which mere weight and volume cannot give; and that, too, makes a very great difference.*

The estimates of cerebral capacity and power that are based on the results of brain-work—for these results must come from the co-activity of the various parts of the brain—certainly have an approximate value. *The question is as to the results of brain-work.* We have been considering the brain itself in its bone-case; we now briefly allude to the work that the brain can do. Contemplating the achievements of art and science in what we know of the world's history, could we for a moment doubt *that the best work has been done by the best brains?* Compare the head of an ordinary mummy with the head of the "chief of the *Artificers* of the abode of Ammon." Could the conquests of modern chemistry be made by the African, the Mongolian, or the Patagonian? Could the schoolboy compete with Plato in the *Phrontistery?* Could the house-carpenter understand the constructive thoughts of Michael Angelo? Could the gladiator write poetry? Could the Arab make the laws of Lycurgus? Could the nomads of the Pampas construct the roads, the fortresses and the temples of the ancient Peruvians? It is not difficult to answer such question as these. And an answer involves the admission that quantity, quality and *use* are intimately concerned in the manifestations and the results of intellectual energy. That is, brain-work depends on the *quantity*, the *quality* and the *use* of the *brain*, especially the *cerebrum*, and more especially the *anterior part* of the cerebrum, ordinarily indicated by the *size* of the *masto-frontal angle*. And if there is not a casual relation between the facts, there is certainly a strangely constant association of two important sets of facts: *for the lower orders of the human race have a small masto-frontal angle; and the higher organs of the human race have a large masto-frontal angle.*

It now seems desirable to draw the following conclusions:

First. In regard to 21 skulls of a lower order:

(1) The average base-line is 4.843 inches.
(2) The average transverse diameter is 5.6 inches.
(3) The average antero-posterior diameter is 7.184 inches.
(4) The average circumference is 20.43 inches.
(5) The average anterior arch is 12.625 inches.
(6) The average frontal arch is 13.488 inches.

(7) The average middle arch is is 13.565 inches.
(8) The average superior arch is 13.28 inches.
(9) The average posterior arch is 7.7 inches.
(10) The average cubic capacity is 77.984 cubic inches.
(11) The average weight is 19.613 ounces avoirdupois.
(12) The average masto-frontal angle is 75.5°.

Second. In regard to 21 uneducated heads:
(1) The average base-line is 5.386 inches.
(2) The average transverse diameter is 6.005 inches.
(3) The average antero-posterior diameter is 7.446 inches.
(4) The average circumference is 22.029 inches.
(5) The average anterior arch is 13.886 inches.
(6) The average frontal arch is 14.482 inches.
(7) The average middle arch is 14.321 inches.
(8) The average superior arch is 13.964 inches.
(9) The average posterior arch is 7.833 inches.
(10) The average masto-frontal angle is 76.5°.

Third. In regard to 21 educated heads:
(1) The average base-line is 5.38 inches.
(2) The average transverse diameter is 6.053 inches.
(3) The average antero-posterior diameter is 7.708 inches.
(4) The average circumference is 22,613 inches.
(5) The average anterior arch is 13.7 inches.
(6) The average frontal arch is 14.750 inches.
(7) The average middle arch is 14.785 inches.
(8) The average superior ach is 14.387 inches.
(9) The average posterior arch is 8-154 inches.
(10) The average masto-frontal angle is 79.75°.

Fourth. In regard to 8 mixed skulls:
(1) The average base-line is 5.2 inches.
(2) The average transverse diameter is 5.975 inches.
(3) The average antero-posterior diameter is 6.825 inches.
(4) The average circumference is 20.25 inches.
(5) The average anterior arch is 12.85 inches.
(6) The average frontal arch is 13.675 inches.
(7) The average middle arch is 13.875 inches.

(8) The average superior arch is 13.7 inches.
(9) The average posterior arch is 7.65 inches.
(10) The average cubic capacity is about 75 cubic inches.
(11) The average masto-frontal angle is about 65°.

Fifth. In regard to 7 South American Indian heads:
(1) The average base-line is 4.875 inches.
(2) The average transverse diameter is 5.303 inches.
(3) The average antero-posterior diameter is 6.892 inches.
(4) The average circumference is 19.875 inches.
(5) The average anterior arch is 10.928 inches.
(6) The average frontal arch is 11.303 inches.
(7) The average middle arch is 11.375 inches.
(8) The average superior arch is 11.589 inches.
(9) The average posterior arch is 7.607 inches.
(10) The average masto-frontal angle is 68.4°.

In fine, the inter-mastoid arches and the masto-frontal angle are, as it were, the expression of distinguishing traits in individuals and in races; and their size is more or less affected by development, growth and education; *but the masto-frontal angle is in general the most significant mark.*

TRANSACTIONS

OF THE

ODONTOLOGICAL SOCIETY,

OF GREAT BRITAIN.

Ordinary Monthly Meeting, May 5th, 1879.

Edwin Saunders, Esq., President, in the Chair.

The Minutes of the previous Meeting having been read and confirmed,

Mr. Arthur Underwood signed the Obligation Book, and was formally admitted to Membership by the President.

The following gentlemen were then ballotted for and elected Members of the Society :

Mr. Edward Keen, King's Parade, Cambridge, Non-resident.

Mr. John Robert Goepel, Mount Pleasant, Liverpool, Non-resident.

The President announced that the following candidates had been duly nominated and would be ballotted for at a subsequent meeting :

Mr. Robert Waller, Cairo, Corresponding Member.

Thos. Clements, 2 Colville Road, Bayswater, Resident.

Chas. James Noble, L.D.S., R.C.S., Eng., 1 Drayton Terrace, South Kensington.

The President also announced that an illustrated monograph, in German, "On the Atmospheric Treatment of Diseased Pulps," by Adolph Witzel, had been sent from Berlin, as a contribution to the library, through the agency of Messrs. Ash.

Mr. COLEMAN then related the following interesting case, which he believed to be almost a unique example of impacted fracture of a tooth. A young gentleman, now seventeen years of age, had a fall, at Malvern, when twelve years old, chipping, but not exposing, the pulp of his right upper central incisor. The tooth, however, gave him no inconvenience until a few months since, when he began to suffer some pain, and applied to a dental practitioner in consequence. As the front teeth were not at all crowded, this gentleman very properly advised that the incisor should be retained if possible. He, therefore, drilled a hole through the posterior wall of the tooth, cleared out the pulp-cavity, introduced some cotton wool soaked in an antiseptic solution, and closed the aperture with gutta-percha. As this did not afford much relief, the patient applied to Mr. Woodhouse, who also counselled patience ; but as the tooth became more painful, the patient again called upon Mr. Woodhouse, and, finding him out of town, came to Mr. Coleman. Mr. Coleman found that there was by this time clear evidence of severe periostitis and alveolar abscess, and as there now seemed to be no prospect of saving the tooth, he, with the patient's ready consent, and Mr Woodhouse's full concurrence, proceeded to extract it ; but, on applying the forceps, the crown alone came away. At first he thought that the fang might have been absorbed, but on looking into the alveolus the top of the fang could be seen, and it was easily extracted. It then became evident that the case had been one of impacted fracture, but the crown and the fang had been so dovetailed together that, notwithstanding the repeated examinations, drilling, &c.,

the real nature of the injury had never been discovered. Mr. Coleman had, indeed, noticed that the tooth felt loose, but scarcely more so than might have been accounted for by the amount of alveolar inflammation which was present. It seemed a little remarkable that, during the long period which had elapsed since the injury, no attempt at repair should have taken place. Apparently no case could have been more favorable for reunion which has occurred under similar conditions. The probable explanation was, that the pulp had been so far injured at the time of the accident as to destroy its vitality, and under these conditions a uniting medium, he believed even of cementum, could not be furnished; otherwise he might have been able to exhibit a companion to the unique specimen of union of a fractured tooth which was now in the possession of the President.

Mr. **Moon** said he also had a case to bring forward, which showed how satisfactorily teeth might behave after being subjected to very considerable violence. On April 25th, as he was leaving the hospital, he was asked to see a man who had just been brought in. He was a workman at Messrs. Broadwood's pianoforte factory. Whilst helping to bend a plank, some of the men let go, and the wood springing up struck him a violent blow under the chin. When seen by Mr. Moon, the state of things appeared to be as follows: The right upper canine was driven inwards, so that its point lay inside the lower canine; the right lateral incisor appeared to be broken off level with the gum; the right central was very loose, and the left central apparently fractured obliquely across the crown. The alveolar plate was driven outwards, and the gums were bleeding and much swollen, rendering a thorough examination very painful and difficult. Being pressed for time, Mr. Moon left the treatment of the case to Mr. Lawrence Reed, then House Surgeon, and was agreeably surprised to find, when he again saw the patient a week later, that all four teeth were *in situ*. As this satisfactory result was entirely due to Mr. Reed's judicious treatment, he would leave him to relate the further progress of the case.

Mr. **Reed** said that the members would have guessed, after what Mr. Moon had stated, that the teeth were not really broken, but had been driven up through the transverse plates of the superior maxilla, and almost through the floor of the nares. He first drew out the canine into its proper position, and then, with fine forceps, carefully drew down the incisors. The lateral incisor was so loose that it was with difficulty kept in place. He took it out of the mouth, but finding it perfect immediately replaced it. He then secured the teeth in position by a platina wire, extending from the first molar on the one side to the second bicuspid on the other, tying each tooth within that space to the wire with soft silk. He then gave the patient a wash for the mouth, told him to use the teeth as gently as possible, and to return the next day. Since then the case had progressed very favorably, the swelling subsided, and the teeth gradually became fixed. The only doubt was as to the ultimate progress of the case; although none of the pulps had been exposed, still their connections at the apex of the fang must have been destroyed, and it seemed doubtful whether these would be re-established, or whether death of the pulp would occur. He thought it would probably be necessary to open the pulp-chambers and to clear out their contents. A favorable point in the case was that the patient was young and remarkably healthy.

The patient was then introduced and examined by most of those present.

Mr. Coleman said that, although the result in this case appeared to be very satisfactory, he had a strong opinion that the use of ligatures under such circumstances, was very rarely necessary, and was always more or less injurious. If, in an ordinary case of replantation the tooth be examined about twenty-four hours after the operation, it would be found to have become looser and to be raised above the level of its neighbors. This was due to the fact that an effusion of lymph had taken place into the socket round the roots of the tooth; and this lymph played a very important part in the subsequent progress of the case. The fluid part was gradually absorbed, and the rest became organized to form the tissue of union. But if the tooth were firmly tied down in its socket, this effusion was prevented or greatly impeded; and he believed, therefore, that the risk of failure was directly proportionate to the efficiency of the ligature. In cases of fracture of the alveolus a ligature was necessary, but not in an ordinary case of replantation.

Mr. Hutchinson asked whether Mr. Coleman would dispense with the use of plates as well as ligatures.

Mr. Coleman said, yes; in most cases he thought the patient's own feelings were sufficient to protect the tooth. In some cases the use of a plate to raise the bite was advisable; but he considered it decidedly injurious to tie the tooth down in a fixed position.

Mr. Hutchinson said he had listened to Mr. Coleman's observations with great interest, for he had long entertained similar opinions, and had refrained from using ligatures whenever their use could possibly be avoided. The following case would serve as an example of the mode of treatment he had found most satisfactory. A gentleman was thrown from his horse while hunting, and knocked out two of his upper front teeth, the right lateral and central incisors being completely detached from their sockets, whilst the left central was adherent only by some shreds of membrane. He replaced the loose teeth as well as he could, and then fitted a splint of Stent's composition capping all the teeth, back as well as front. By making the patient bite upon this, and adding fresh material little by little over the loose teeth, these were gradually pushed back into their proper level. He left this splint in the mouth for twenty-four hours, and then replaced it by one of vulcanite, which capped the back teeth only, and made just thick enough to protect the front teeth from any pressure when the jaws were closed. The patient wore this for a fortnight, by which time the displaced incisors had become firm and fit for use. During the past Winter he had treated another case in a precisely similar manner, and with equally satisfactory results. A young lady fell on the ice, while skating, breaking off her right upper central, and driving the other backwards into the jaw. He drew this tooth into line with his fingers, used no ligature, but protected it from pressure by capping it and the back teeth. The splint was worn three weeks, by which time the left central had become firm and useful; the right was then pivoted. The advantage of this plan was that the vulcanite plate acted like a surgical splint on an ordinary fracture, protecting the teeth from all risk of displacement, but exerting no pressure.

Mr. Moon said it would have been impossible to have returned the teeth in Mr. Reed's case without using a ligature; the right lateral especially had to be held in position until it had been fastened to the wire.

Mr. David Hepburn showed, for Mr. J. F. Corbett, of Cork, the lower central incisors (permanent) of a girl, eight years old, remarkable for their exceedingly small size. The laterals were well developed, and all the other teeth quite normal. Mr. Corbett removed the diminutive centrals, and purposed bringing the laterals together.

Mr. Kirby, of Bedford, showed several contrivances which he had been in the habit of using in his practice, and had found valuable. (1.) A tongue-holder, with tubular stem, for use with any kind of saliva-ejector. It was small, and out of the way in operating; with the addition of a pad in the cheek it enabled one to do a long operation without any inconvenience from moisture. He had been in the habit of using with this an aspirator, made on the principle of Sprangel's pump, *i. e.*, similar to Mr. Claude Roger's apparatus, but connected with a spittoon, so that it did not occupy any extra space. A pint of water in the glass globe, which surmounted the apparatus, would keep the ejector in action for more than an hour. (2.) A shield made on a plan suggested, he thought, by Dr. Orphoot, to which a weight was attached for the purpose of retaining it in place. The weight could be placed under the chin, or turned to the right or left so as to balance the shield in any required position. (3.) While speaking of keeping the mouth dry, he would show a material which he had for many years found most useful. It was called mull muslin. He kept it prepared in bandage-like strips, and cut off a piece as required: this, when rolled up, formed a most convenient pad to place under the cheek. He also kept a larger size for wrapping round spiral springs, and found it most useful in operating on either jaw. (4.) He was also anxious to bring before the Society a new oblique point, which could be used with several kinds of automatic mallets; it was so small as to be available for any cavity, and gave what he had long considered a great desideratum—a blow from behind forwards. He had always protested against the use of curved points for mallet instruments, for he had found by experiment that a comparatively slight curve would take off all the force of the blow, so that, although the operator thought he was hammering away most effectually, the result was only noise, and bad, soft, unsound work. He himself preferred the finger lever mallet, and had brought one to show the new point in action. He had also attached one to a pneumatic mallet. It would be observed that his pneumatic instrument had the ball replaced by a very simple form of cylinder, which gave rather a quicker repeating action, and was less fatiguing to work, as the foot was not raised so far off the ground.

Mr. OAKLEY COLES then showed, for Mr. Harris, of Finsbury Place, City, a new form of detachable spring and swivel. The advantages claimed for Mr. Harris for this spring and swivel, are:

a. The solidity of pin and spring.

b. The closeness of adjustment of swivel and pin to surface of molar block.

c. The easy change to any angle.

d. Perfect safety, and quick renewal of new spring.

Mr. KIRBY said he had almost given up the use of springs. During the last four years he had only used them in one case, and then solely because the patient desired it. When additional stability was required, he preferred to have the lower molars cast in solid gold. It might be thought that this would make the plate uncomfortably heavy, but, as a fact, the weight was less than when springs were used. In an upper denture additional firmness could be obtained by cutting ridges on the sides of the palate so as to press it into the soft palate,

On Nicotine and its Action upon the Teeth. By DAVID HEPBURN.

MR. PRESIDENT AND GENTLEMEN :

I will occupy your time but for a few minutes this evening, in laying before you a short communication on "Nicotine and its Effects on the Teeth." I have been led to do so by the oft-repeated query of patients as to whether or not the practice of smoking is deleterious to the organs of mastication, and I hope my few remarks may elicit your experiences upon this by no means unimportant question.

Notwithstanding the sweeping condemnation of the use of tobacco given by King James I, in his "Counterblaste," in which he describes it as a "custom loathsome to the eye, hateful to the nose, harmful to the brain, dangerous to the lungs, and in the black, stinking fume thereof nearest resembling the horrible Stygian smoke of the pit that is bottomless," the practice of smoking has increased up to the present day, and we find it employed as a universal luxury alike among civililized and savage nations. Snuff-taking has of late years decreased ; chewing and smoking being more frequently indulged in. The former habit is, amongst our countrymen, chiefly confined to sailors ; but in America I believe it is more universal. Although a distinct poison, the system, in the majority of instances, soon becomes tolerant of the action of tobacco, and a remarkable instance is quoted by Dr. Arnott, in an old volume of the *Lancet*, which shows the enormous amount capable of being consumed, after prolonged practice, without creating apparent constitutional disturbance. The case was that of a sailor, aged sixty-four, in the almost uninterrupted enjoyment of good health, who had chewed tobacco for upwards of fifty years, also eating it. For many years in the later part of his life he was in the constant practice of "eating a quarter of a pound of the strongest negrohead every five days."

Taken internally, or inhaled in the form of smoke, the action of tobacco is that of a sedative and depressant ; and in the unaccustomed, nausea is frequently produced. As a rule, however, a few trials will render the system tolerant of the poison, and when used in moderation it promotes regular action of the bowels, and soothes nervous irritation.

From a medical point of view it is interesting from the fact that it finds a place in the Pharmacopœia, but as a therapeutical agent it has been superseded by chloroform. In former times, however, an enema of tobacco was in rare cases prescribed, but great danger attended its administration. In this form it was capable of producing great muscular relaxation when that condition was necessary, as, for instance, in cases of strangulated hernia. *Nicotiana tabacum*, or Virginian tobacco, is classed in company with many of our most deadly poisons,—hyoscyamus, belladonna and stramonium, in the natural order Solanaceæ; and it must not be confounded with Indian tobacco, or *Lobelia inflata*, of which there are two officinal preparations in the Pharmacopœia. (*Tinctura lobeliæ* and *Tinctura lobeliæ ætherea*), although they have much in common in their action upon the system.

The deadly nature of the alkaloid contained in tobacco may be seen from a quotation of the two following cases, in which death resulted from the administration of the drug. The first occurred in Belgium, in 1851. An individual, it appears, studied chemistry with a view to the preparation of the alkaloid nicotine. He administered the poison to his brother-in-law, and the victim succumbed in five minutes. The other case occurred in London, in 1858; in this the act was suicidal, and death was quite as rapid. It is said that the unfortunate individual, who was a chemist of rising reputation, was observed to stare widely, and heaving a deep sigh died without convulsion. In addition, fatal results have followed its employment as an enema, and symptoms of an alarming nature have followed the inhalation of smoke, sleeping surrounded by bales of the weed, and even from carrying it next the skin, a practice which has been resorted to by smugglers.

From all parts of the tobacco plant, a liquid volatile alkaloid, *nicotina*, can be obtained. This nicotine, when pure, occurs as a colorless volatile oil, but, on exposure to the air, it becomes yellow, and this tint deepens by keeping. The taste is acrid, and the odor is described as "pleasant and ethereal." In this alkaloid is found the source of activity of the tobacco plant.

Nicotine is soluble in water, alcohol and ether, and neutralizes acids. The analysis of tobacco smoke is of importance to us in considering this question. It is said to contain a certain amount of watery vapor. Ammonia is also present, and it is this which gives to the smoke an alkaline reaction. Next we have carbonic acid, to which Dr. Richardson has attributed much of the sleepiness and lassitude which follows prolonged inhalation of tobacco fumes. Further, it is stated that a certain amount of free carbon is always present. Lastly, we find the oil of tobacco which contains nicotine (the alkaloid), a volatile substance possessing a characteristic odor, and a dark resinous extract having a peculiar bitter taste. The quantity of this oil which is taken in at each inhalation of smoke may be easily seen by the old experiment of quickly *exhaling* a puff of smoke through a handkerchief stretched over the orifice of the mouth.

I have thus briefly enumerated some of the characteristics of this agent, which is so largely in use at the present day, and which, both in its secondary and direct effects, must act in a marked way upon the teeth of individuals who indulge in the practice of smoking. Of its secondary effects there is but little to be said, save that in the fully matured, where the constitution has been impaired by the excessive use of tobacco, the result to the teeth will probably be similar to that produced by any other influence tending to derange the bodily health ; a subject too wide to enter upon on this occasion. Smoking, when indulged in before complete maturity, when the vitality of the teeth is peculiarly active in completing the structures of which they are composed, must exercise a most deleterious influence upon these organs, and favor the development of decay. Consequently what I may say of the direct action of nicotine on teeth, I intend only to apply where growth is complete.

From the slight observation I have given to this subject, I am led to believe that the direct action of nicotine upon the teeth is decidedly beneficial. The alkalinity of the smoke must necessarily neutralize any acid secretion which may be present in the oral cavity, and the antiseptic property of the nicotine tends to arrest any putrefactive changes which may be going on in carious cavities. But, in addition to these, we have another agent at work in the carbon with which tobacco smoke is impregnated, and I am inclined to believe that the dark deposit which we find on the teeth of some habitual smokers is largely composed of this ingredient.

It is this carbon which is deposited upon the back part of the throat and lining membrane of the bronchial tubes ; and with whatever disastrous effect it may act in these situations, from what we know of its wonderful antiseptic properties, I think we are justified in concluding that its action upon the teeth must be of a beneficial nature. Moreover, we find this deposit takes place exactly in those positions where caries is most likely to arise, and on those surfaces of the teeth which escape the ordinary cleansing action of the brush. We find it interstitially, in all minute depressions, and filling the fissures on coronal surfaces. It may be removed with scaling instruments from the surface of the enamel, but where it is deposited on dentine, this structure becomes impregnated and stained. Indeed, it is only where the enamel is faulty, and there is access to the dentine, that any true discoloration of the tooth takes place ; but it is remarkable how the stain will penetrate through even minute cracks, provided the necessary attention to cleanliness be not exercised. The staining power of tobacco oil may be seen when a deposit has taken place on the porous surface of tartar collected on the posterior surface of inferior incisors. In this situation a shiny ebony appearance is occasionally produced. That tobacco is capable of allaying to some extent, the pain of toothache is, I think, true : its effects beng due, not only to its narcotizing power, but also to its direct action upon the exposed nerve ; and I am inclined to attribute the fact of the comparatively rare occurrence of toothache amongst sailors, in great measure, to their habit of chewing. I have been struck, in the case of one or two confirmed smokers of an exaggerated type who have come under my notice, by the apparent tendency which exists towards the gradual production of complete necrosis of carious teeth, and the various stages of death of the pulp, and death of the periosteum taking place without pain or discomfort to the patient. This condition may, of course, be brought about by a variety of influences : but in these special cases I am inclined to think that the presence of nicotine in the mouth has acted powerfully. Hoping to hear your experiences on this subject of nicotine, and its effects on the teeth, I leave it in your hands.

DISCUSSION.

The PRESIDENT remarked that Mr. Hepburn had chosen a subject of considerable importance, to which all present must have given some attention. From the title of the paper, "Nicotine and its Effects on the Teeth," he had expected something rather different. He thought that Mr. Hepburn had been making some experiments with nicotine on diseased pulps, &c., and wished to bring the results before the Society : however, the paper they had heard was probably more interesting and practical.—For the therapeutic value of nicotine was not great, its use being, he believed, restricted, or nearly so, to cases of strychnine poisoning, from its great power of producing muscular relaxation. His own opinion was that when practised in moderation, smoking was not injurious, but if indulged in to excess it was apt to cause chronic irritation of the mucous membrane of the mouth, and might thus injure the teeth indirectly.

Mr. Oakley Coles said that although the essential principles produced by the combustion of tobacco might possess antiseptic properties, and thus be useful in some respects, he did not think that smoking was altogether so innocent an amusement as Mr. Hepburn seemed to consider it. He thought that in cases where the enamel was delicate, the rapid changes of temperature might be injurious. When smoking was indulged in out of doors, teeth were exposed to alternate blasts of cold and hot air. He had noticed that the enamel of smokers' teeth was sometimes cracked all over, and he thought that this might be the cause of it: he had noticed the same thing also in cooks.

Mr. Underwood said he had heard it asserted that smoking did not increase the temperature of the mouth.

Mr. Harding believed that the general opinion was that smoking was not directly injurious to the teeth, but might affect them indirectly by deranging the digestion, or lowering the general health. He had noticed that in the mouths of regular smokers there was a great difference in the amount of the dark deposit to which Mr. Hepburn had referred. Could he account for this? Did it depend on the kind of tobacco smoked?

Mr. Arthur Underwood remarked that although the ammonia in the smoke neutralized the oral secretions for the time, it also acted as a stimulant, and caused increased production both of mucous and saliva. He thought this could scarcely be considered a beneficial effect. He thought also that smoking had a tendency to cause recession of the gums.

Mr. Coleman said he had very frequently been pressed to give an answer to the question, "Is smoking injurious to the teeth?" He had formerly held the opinion that it was, but had now changed his mind.—He believed that smokers were less liable to caries, and they were certainly less liable to pain. With regard to the preservative effects which Mr. Hepburn had ascribed to nicotine, he had always thought, that although those who chewed tobacco got some amount of nicotine, only a very small amount was given off when the tobacco was burnt.

Mr. Kirby remarked that in most cases of the destructive distillation of vegetable products, some members of the phenile series (creosote, carbolic acid, &c.) were present in the vapor, and probably this might account for the preservative properties of tobacco smoke. Could Mr. Hepburn say whether creosote or any allied product had been detected in the smoke?

Mr. MOON asked whether Mr. Coles had noticed that cracking of the enamel was not confined to smokers? He had frequently noticed it in patients who did not use tobacco. One of the most marked cases he had met with was a tailor, and he attributed it to his habit of biting his thread. Since then he had not met with many cases which seemed to be due to this cause.

Mr. CHAS. TOMES asked whether Mr. Coles had noticed that the enamel might be cracked to a very considerable extent without any tendency to caries resulting?

Mr. OAKLEY COLES said he had noticed that cracking of the enamel might occur in persons who did not smoke, but he thought it was more marked in those who did. It might be that it was only more noticeable in smokers because the dark staining of the cracks made them more visible. He was also aware that cracks in the enamel might exist for a long time without the production of caries, provided the teeth were well developed, and his remarks only referred to cases in which the enamel was delicate and friable.

Mr. HEPBURN, in reply, said that he could give no information as to the presence of creosote in tobacco-smoke; he had not seen it mentioned in any analysis. He had seen cracks in the enamel of all sorts of people, and did not think they were caused by smoking, but only that this made them more visible. Nor was it his experience that caries often started from these cracks, unless there was some defect in the dentine as well.—At the same time, he was willing to allow that the rapid changes of temperature might be injurious to delicate enamel. He did not think that smoking favored the deposit of tartar; it was rare for smokers to be troubled with soft tartar; it was generally small in amount, and hard.

The PRESIDENT then proposed the usual vote of thanks to the author of the paper and the contributors of casual communications. This was carried unanimously, and the meeting terminated.

The following applications for Membership have been received by the Council:

George William Parkinson, M.R.C.S., Eng., 36 Sackville Street, London, Resident.

Francis Ewbank, M.R.C.S., L.S.A., Harvard College, U.S., 19 Savile Row, Resident.

Adam Taylor, Indian Army, Medical Department, Civil Surgeon, Peshawur, India, Non-resident.

NOTES.

Rhode Island Dental Society.

At the Annual Meeting of the Rhode Island Dental Society, in Newport, July 1st, 1879, the following officers were elected for the ensuing year:

President, Dr. C. A. Brackett, Newport; Vice-President, Dr. A. W. Buckland, Woonsocket; Secretary, Dr. L. L. Buckland, Providence; Treasurer, Dr. W. P. Church, Providence; Librarian, Dr. S. E. Greene, Newport.

EXECUTIVE COMMITTEE.—Drs. A. W. Buckland, W. H. Thornton, William Barker.

The roll of active members was increased by five new names.

L. L. B.,
Sec'y R. I. D. S.

Harvard Odontological Society.

The First Annual Meeting of the Harvard Odontological Society was held at the Revere House, Boston, this afternoon and evening (July 2d), the President, Dr. W. E. Page, Charlestown, in the chair.

PROGRAMME.—Oration, by Dr. J. G. W. Werner, Boston. Essay, by Dr. H. F. Hamilton, Boston. Reminiscenses, by Dr. D. F. Whitten, South Boston.

After which, the usual festivities were passed at the dining-room, where the President acted as toastmaster. Poem, by Dr. E. B. Hitchcock, Boston.

Returning to the business meeting, the following officers were elected for the ensuing year:

President, Dr. D. F. Whitten, South Boston; Recording Secretary, Dr. H. F. Hamilton, Boston; Corresponding Secretary, Dr. W. E. Page, Charleston; Treasurer, Dr. H. F. Dunkel, Boston.

PRUDENTIAL COMMITTEE.—Dr. H. F. Hamilton, Boston; Dr. M. K. Rand, Boston; Dr. Frank Perrin, Boston.

After which the retiring President delivered his address and the Society adjourned.

Indiana Dental Law.

The following is a copy of the law regulating the practice of dentistry in the State of Indiana, enacted by the Legislature of that State at its recent session.

SECTION 1. *Be it enacted, by the General Assembly of the State of Indiana,* That it shall be unlawful for any one to practice dentistry for a fee or reward, in the State of Indiana, without having received a diploma from a Dental College, duly incorporated under the laws of this or some other State of the United States, or a certificate of qualification, issued by a Board of Examiners to be appointed by the Indiana State Dental Association; *Provided,* That nothing in this act shall apply to any one engaged in the practice of dentistry in this State at the time of the passage of this act.

§ 2. A Board of Examiners, consisting of five practicing dentists, shall be appointed by said State Dental Association, according to its by-laws, whose duty it shall be to meet annually at the time and place of meeting of the said State Association, or oftener, at the call of three members of said Board, at such time and place as may be designated in said call, and to examine all who pass a satisfactory examination.

§ 3. Any applicant who furnishes satisfactory proof of having been engaged in the reputable practice of dentistry for ten consecutive years immediately preceding the time of their application, shall be examined only in practical dentistry—operative and mechanical; all others shall be examined in Anatomy, Physiology, Pathology, Therapeutics, Chemistry and the practice of surgical and mechanical dentistry.

§ 4. All certificates issued under the provisions of this act shall be signed by all the members of said Board of Examiners, and have the seal of the Indiana State Dental Association affixed, and shall be *prima facie* evidence of the right of the holder to practice under this act, which right it shall be incumbent on the holder to prove in all prosecutions under the same.

§ 5. Any member of the Board of Examiners may grant a permit to practice until the next meeting of the Board, but such permit shall be valid only until said next meeting, and in no case be extended or renewed.

§ 6. Any person violating the provisions of this act shall be liable to prosecution, upon complaint of any citizen of this State, before a Justice of the Peace, or in any Superior Court of record, by indictment or information, in the county where the offense is committed; and, upon conviction, shall be fined in any sum not less than fifty nor more than one hundred dollars for each offense: *Provided*, Nothing in this act shall be so construed as to prevent physicians or surgeons extracting teeth; and all fines so collected, shall belong to the common school fund of the county where assessed.

§ 7. To provide a fund to carry out and enforce the provisions of this act, the Board of Examiners shall, before examination, collect from each applicant the sum of twenty-five dollars; any portion of which there may be remaining after paying necessary expenses attending such examination, shall be paid into the treasury of the said State Association, to be used for the purpose for which said fund is hereby created.

§ 8. Three members of the Board of Examiners shall constitute a quorum, and all questions before them shall be decided by a vote of the majority of those present; and should there not be a quorum present on the day of meeting, those present may meet and adjourn from day to day, until there is a quorum present.

§ 9. The Board shall receive, out of the fund created by this act, such compensation for their services as the by-laws of said Dental Association may provide.

§ 10. This act shall be in force from and after its passage, publication and circulation in the several counties of the State.—*From the Am. Jour. of Dental Science.*

Another Man who has Swallowed his Teeth.

Augustus Marsh, of Bangor, Me., recently had the misfortune to swallow his false teeth, which are now in the stomach. He at first tried to hold them in the throat, but did not meet with much success. Soon after swallowing the teeth, he spit up a little blood. For some time he was in great pain. Opiates were given him, but it required the combined strength of several powerful men to keep him quiet. He is now much better, and suffers but little pain. Of course, he has a rather unnatural feeling about the stomach. He eats heartily and digests his food well. His diet consists principally of coarse food. What the result will be cannot not now be told. Instances are on record where teeth have been passed out. It may be necessary to cut through the lining of the stomach, and remove them in that way. Again, they may pass down into the intestines, and have to be cut out from there. He is able to be up most of the time.—*Boston Transcript.*

JOHNSTONS'
Dental Miscellany.

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DENTISTRY, ITS OPPORTUNITIES AND OBLIGATIONS.

(A paper read before the Members of the Pennsylvania State Dental Society.)

By Dr. C. N. Peirce,
Professor of Dental Physiology and Operative Dentistry in Pennsylvania College of Dental Surgery.

By the revolution of time we are brought once more together in this, our eleventh annual meeting, and through your courtesy and kindness I have the honor of presiding over your deliberations during its sessions, which, I sincerely trust will prove periods of pleasure—intellectual pleasure and profit—enriching the subsequent days of our professional life.

Through the fleetness of time these annual gatherings seem to come at short intervals, but not too short, freighted as they are with messages of strength and goodwill. To most of us they are useful, and to many, perhaps, essential, affording as they do such admirable opportunities for the comparison of notes and for the selection and preservation of all that has been found efficient and true. They are periods of education, education in its broadest sense, developing and strengthening our faculties; this certainly should be our object, a common object, a common interest, upon a broad and elevated platform. This education should be pursued not only for personal and individual profit, but for the benefit of our profession and of society; an education that brings with it increased capacity, honor, power, influence and true wealth. This will elevate not only the individual but his occupation, and there are no better, no more efficient or more certain means of elevating the status of our profession, than by educating, and hence elevating ourselves.

If we glance at our civil institutions nothing more certainly indicates the progress a State or Nation is making than the opportunity it offers for the education of its people, their intellectual, moral, or religious culture. Nor is this done alone for the interest in the special personal advantage of the individual, but for the benefit of the State, to the true wealth of which it largely contributes.

Education is an important factor in the progressive development of individuals, states or nations, and additional opportunities for pursuing it mark every advanced step in the life of each. The results of six or sixty thousand years have made for the present generation a wider and better culture possible, and to leave to our children, and childrens' children an opportunity still greater, is the least we can do as a return for our own inheritance.

Such is the relation which one generation of mankind holds to another that the present, profiting by the experience of the past, will draw up to its own level the coming generation, who will in turn out-strip and set harder lessons for their sires than were set for them.

Life and its responsibilities bring with them domestic, civil and religious duties that cannot be overlooked or ignored. Every man is indebted to society, not only for his inherited but for his acquired culture, and for this society claims in return a compensating influence—for his having lived, it should be made better. Not less is the individual obligation to a profession. Its years of probation and growth have given it position, its accumulated culture has given it influence, and any one entering it is benefitted in proportion to his ability to appropriate these results and advantages ; so by this choice of a profession an obligation is assumed of which one should ever be mindful, and this stimulating influence, should create a desire to contribute something for the benefit of his associates. Membership and attendance upon monthly, as well as these annual gatherings, is not without a recognized educational and truly beneficial influence. Intercourse of man with man, mind with mind, stimulates activity, provokes thought, elevates desires, leads to new and better methods and excites to novel inventions, so that thereby, we are continually acquiring new power, peacefully annexing to our own domain new provinces of Nature, multiplying labor-saving appliances, and setting wind and water, fire and lightning to do our work, and with the aid of these, saving an amount of time which should be spent in some ennobling pursuit. How to employ advantageously this liberated time is an important inquiry ; that it should be so occupied as to promote a desirable culture is doubtless true, but so differently do minds develop, and so varied is the amount of force which Nature puts at our disposal, that an accurate estimation of our tastes and capacities becomes an important factor in our progress. So, in deciding upon a course of reading or study that shall yield a compensating return, or a profitable contribution to our storehouse of knowledge, an important consideration is, what subject is of interest and will give most pleasure in its pursuit ; remembering that attention depends upon interest and memory depends upon attention, and to study what is not remembered is of comparatively little value ; it is much like the work of Sisyphus, the fabulous King or Corinth. It is but a tread-mill operation with the machinery detached ; it is an expenditure of time and energy without results. Nor is the matter of interest or pleasure the only important factor in the selection of a subject for study. It should certainly be something that it largely concerns us to know, to use the words of a well-known writer, "we must determine the relative values of knowledges," and to do this we must properly estimate the requirements of our life-work, and accurately measure our relative deficiencies. This again involves the inquiry as to the extent or limitations of our occupation, and whether our studies in *this* or *that* direction, will contribute most to our efficiency or success.

Concerned as I am for the elevation of the profession to which I have given twenty-seven years of active interest, I must beg your indulgence for a few moments while I present the claims of the anatomical and physiological studies which hold so intimate a relation to our duties, that to call them collateral, gives them a place more foreign than is warranted.

Anatomy, the science of the structure of living tissue, opens a field so broad and important that in its general outlines it should be understood by every parent and teacher, but when studied as special, microscopical or comparative anatomy, its interest and importance is so intensified that life seems too short to compass its almost unlimited field.

Comparative anatomy has not only familiarized us with the form of the typical mammalian tooth, of which those of the human species are doubtless but modifications, but it offers us the best explanation for the differentiation of tooth forms, by pointing out the various mandibular movements, and showing that co-existent with these is a peculiar type of tooth formation, and "that as these excursive movements of the jaw have increased in complexity, there has been an apparent increase in the complexity of the enamel foldings, ridges and crests."

It has also shown us that while the typical number of teeth in the mammalia was forty-four (44), this has been gradually reduced by the modifications of food, and use, until the thirty-two (32), which with their imperfections are common to the human species, is but prophetic of an almost edentulous jaw. It has demonstrated beyond a doubt that the difference in the size of the human jaws and in the size and structure of the human teeth and their attachment, are but modifications in correspondence with the difference in use; and again it has demonstrated that this is largely due to the changes or modifications in food from the solid to the soft—from the uncooked to the cooked.

Physiology, embracing as it does Biology, in introducing us to that department of natural science which treats of the laws, processes, functions and phenomena of life, as well as the study of vital force and nutrition, leads us back to the very verge of inorganic matter. Vitality is the first condition of animal existence, a condition determining growth and maintenance—renewal and regeneration, in the incipient as well as in the maturer stages of organisms.

In the contemplation of this we are carried to the commencement of life. The morphological unit, the primary and fundamental forms of life, an individual mass of protoplasm, in which no other or further structure is discernible. We may follow this mass through its first process of development by division and subdivision, into a number of morphological units, and with these build up the cell.

"Behold, now, a fecundated cell," so small, and apparently so homogeneous, that neither chemistry nor microscopy can detect the parentage thereof—and yet, in that ovum, there reside physical, mental and moral potentialities, peculiarities of class, order, species, family, individuality; in that ovum, in every living germ, "there is the assured promise of all the organs which in their harmony and co-ordination make a perfect organism." There is the tendency to reproduce the characters of its immediate parents. No inherited structural modification so slight, no functional peculiarity so insignificant, no moral obliquity so monstrous in either parent, that it may not be wrapped up in this little cell, abiding its allotted time to make its appearance in the offspring. From this microscopic germ we trace the various progressive steps from the simple to the complex, and note the gradual differentiation of organs and functions, recognizing the same developmental process that is observable in the progress from the lower to the higher organisms. And just here we note the fact that, "physiologically, as well as morphologically, development is a progress from the general to the special."

Before leaving this subject, let me again refer to that most remarkable and inexplicable study of heredity—the imperfections in structure and the predispositions to disease that are transmitted from one or both parents to the offspring. No occupation affords a better opportunity for observing these than does ours. What organs are more readily impressed by systemic conditions than the teeth? What structures are more certainly modified in quantity or quality than the dental? Upon the teeth of thousands of children are written in letters of gold the sins of their fathers. Many a pure wife suffers the humiliation of seeing her first born disfigured for life through the licentiousness of her husband. What dentist has not recognized with unerring precision the cause of the peculiar malformation of the teeth of this or that child; or as he has watched and treated with care some case of maxillary necrosis, has not fully realized that the sins of the parent are surely visited upon the children?

Not less allied to our profession than the foregoing studies of anatomy and physiology is that of microscopy; with the aid of its little spheres multiplying world upon world, we are afforded such golden opportunities for self-instruction. Of the field it presents, and the interest it adds to our professional labors, we may well be proud, revealing to us as it does, a differentiation of tissue and a wonderfully delicate and vascular structure, which to the unaided vision is in appearance naught but a homogeneous, structureless mass. Of the improved instruments of research which have added so much to the science embraced in the healing art, there is no one which takes such unchallenged precedence in the assistance it has rendered to the anatomist, physiologist, histologist and pathologist as does the microscope. Previous to its use, nothing was definitely known respecting the development, organization or structure of tissue; and until its penetrating eye revealed the true appearance of tissue in health, the changes made by the ravages of disease were unknown to the pathologist. As students, in our examination of tissue normal or morbid, whose structures are too minute to be accurately seen without artificial assistance, this instrument of precision is of incalculable advantage to us. In no branch of anatomy have its revelations added greater wealth of knowledge, or given more definite information, than in studying the development and structure of the teeth. From the infolding of the epithelial layer, and on through its various progressive changes, with the modifications in the sub-strata of cells for the dental and cemental structures, and their preparation for the deposition of the salts of lime, all is so beautifully and wonderfully unfolded by the revelations of this instrument, that what once was wrapped in mystery and viewed with superstition, is now lined out with mathematical precision from its inception to its completion, so that through the instrumentality of this piece of mechanism mystery yields to intelligence, and superstition to wonder and admiration, as we study and appreciate the wisdom displayed in the laws governing the development of such structures.

I have thus briefly sketched these allied studies that we may the more clearly realize the scope of our professional life and fully appreciate the opportunities it offers for culture. Truly the harvest is abundant, and rich in the fullness of the grain.

Let us not lament the narrowness of our field, or complain of the limited demands of our occupation, while subjects of such interest are mastered by so few, but rather let us labor, and labor unceasingly, remembering that "he that soweth shall reap: and whosoever hath, to him shall be given, and he shall have more abundantly."

I have spoken thus of these three branches, not only because of the near relation they hold to our special industry, but because I believe most emphatically that such knowledge widens our opportunities for good: nay, more than this, I believe that as our professional labors have provided for our physical wants, and have ensured the needful comforts for those dependent upon us, a still deeper, wider, and more important field is opened before us by pursuing further, either these or some other branch of the natural sciences.

It is not enough that our handiwork should have erected untarnished monuments of our skill, or our appreciative patients should hold us in pleasant memory for the services we have rendered: for all of this we have received a commensurate compensation. Let us, then, give a portion of our leisure moments to the more thorough study of some one branch of science, and in this way add something to the stature of our profession, for the revenue it has yielded and for the position it has made possible.

Believing, as I do, in the elevating and ennobling tendency of the study of the natural sciences, I think we cannot pursue any department or branch "without being imbued with a love of Nature as she displays herself in the ever varying attitude of organized existences;" and though our selection of a subject should be one carrying our interest and sympathies beyond the confines of our daily life, we should be broadened and benefited by the "truth discovered anywhere within the physico-vital records of a past and passing world, and cherish with renewed interest these additional glimpses of the Infinite," with an increased desire to tear aside the "veil that separates the seen from the unseen."

Accurate and enlarged conceptions of the structural, morphological and functional peculiarities and their modifications, exhibited by the multitudinous organisms which nature unfolds, have a wonderful influence in training the powers of observation, and, if not overbalanced by some unfavorable conditions, exercise a most salutary effect in quieting the manner and in preventing brag and pretension. Culture kills conceit and exaggeration, and at the same time advances social and intellectual worth. In confirmation of this let me quote the following from an address delivered some years since by Prof. Huxley, "On Natural History as Knowledge, Discipline and Power." He says, "Let those who doubt the efficacy of science as moral and mental discipline, make the experiment of trying to come to a comprehension of the meanest worm or weed, of its structure, its habits, its relation to the great scheme of Nature. It will be a most exceptional case if the mere endeavor to give a correct outline of its form, or to describe its appearance with accuracy, does not call into exercise far more patience, perseverance and self-denial than they have easily at command; and if they do not rise up from the attempt, in utter astonishment at the habitual laxity and inaccuracy of their mental processes, and in some dismay at the pertinacious manner in which their subjective conceptions and hasty preconceived notions interfere with their forming a truthful comprehension of the objective fact." "There is not one person in fifty whose habits of mind are sufficiently accurate to enable him to give a truthful description of the exterior of a rose."

We have spoken of education, of the opportunities offered in our profession, of the elevating influence of the study of the natural sciences—a word or two now respecting the methods of study, and I shall not tax you longer.

It is not the superficial knowledge of a number of branches that counts for education, or makes the man a source of wealth in society, but the thorough mastery of one ; so let us not waste our strength in attempting too much ; but remember that from the general to the special is the march of progress. "The art of enthusiasm," and concentration of force, is what every man who makes himself authority in any department must learn.

Espy's labors, night after night, upon the house-top watching the formation, movements, and dissolution of clouds, culminated in our daily weather reports.

Agassiz, Tyndall and Desor, summer after summer, in their cave-house at Chamounix, gave us the movements of the glacier of the Aar.

The results of Rosa Bonheur among the cattle, Hinckley with the dogs, Landseer with the deer, add beauty to our homes and make these animals familiar companions of city life.

Leidy and Cope in Paleontology, Le Cont and Horn in Entomology, Kollicker, Leydig and Haeckell in Histology, Audubon and Gould in Ornithology, Hunt in Microscopy, Tryon in Conchology, with a host of others ; each pursuing his individual specialty with such industry, enthusiasm and pride, that an undoubted confidence is placed in the published results of their researches.

This same division of labor is seen in the science of Geology, Mineralogy, Botany, Chemistry, and Physics ; each worker in his favorite science: each considering his own the flower and "perfect consummation of the intellectual world." This is the beauty and strength of the science of the present century, "harmony in diversity, multiplicity in unity."

It is the untiring labor and zeal of such men as Spencer, Darwin, Haeckel and Huxley which has brought so prominently before the people the theory of evolution as against that of emanation ; and whether or not subsequent revelations sustain it in its fullest proportions, it is a matter of the greatest congratulation that the indomitable courage and industry of these men and their co-laborers have done so much to relieve society of ignorance and superstition.

In estimating the value of study and education, let us not think the end and object of it all is the accumulation of gold, or personal aggrandizement, but rather to brighten the face and lessen the burden of life ; to strengthen in the human heart contentment with its lot, to increase that faith which believes "that all things are well ordered and sure, and work together for good."

REGULAR MEETING OF THE FIRST DISTRICT DENTAL SOCIETY OF THE STATE OF NEW YORK, HELD AT THE OFFICE OF J. MORGAN HOWE, MAY 6TH, 1879.

INCIDENTS OF OFFICE PRACTICE.

Dr. **Atkinson** : I have a number of incidents of office practice which afford an opportunity for repeating my old caution to beware of poultices in all periosteal inflammation. There are many dentists, who, every time they get a periostitis in the mouth, advise some sort of warm poultice, which can only aggravate the difficulty ; and if the constitution of the person be broken down somewhat, they are almost certain to result in necrosis to a greater or less extent. I have a couple of cases of that kind where extractions have been injudiciously resorted to to relieve pain, and then, by treating in this way, causing the trouble to extend further and further. I want to emphasize my earnest wish that every dentist discard warm applications to any kind of inflammations in the mouth. I want you to eschew that thing, and as you love your science or patients, not to favor it, or fancy that it is possible it can be doing any good, however high the authority may be that is quoted in support of it.

Dr. **Francis** : Last Sunday evening a gentleman called on me, introduced himself, stating he was a physician and wished me to go and see his wife. I did not quite like the idea of going out so late at night, but he stated that he had been treating her some two weeks, and during that time she had not had one moment's relief from pain. He had that day at his house quite a bevy of physicians. One of them said it might possibly be dental neuralgia, and requested him to call upon me. I went with him, inquired concerning the trouble, asked where the pain was located and what treatment had been used. I examined the mouth and found an inferior first molar with ä large amalgam filling in it. I pressed my finger upon it, and it gave her pain; then took my thumb and finger and lifted it ; she said it relieved her. I pronounced it a case of peridentitis. I drilled a hole through the filling, and the very moment the drill pierced it she felt better. I injected a little cold water, and she said, "oh ! how good that feels." I then bathed her face with cold water, and she felt like a lark.

Dr. **Dwinell** : I have recently had in my office a number of cases where artificial protrusion of the lower jaw was induced by a full denture being badly articulated. It had been induced by the articulation being made in such a way that whenever the teeth came together they struck down upon an inclined plane which forced the lower jaw forward. One case was brought to me a number of months ago. A lady had worn a set about two years. She was obliged to go to San Francisco, and I found that it had increased almost two-fold within about eight months, and I have supplied an entire denture and restored the contour of the jaw. I have had three cases of that kind within three or four months. It shows by what simple means the jaw may be disfigured.

REPLANTING AND A NEW PROCESS OF INGRAFTING PORCELAIN CROWNS ON NATURAL ROOTS, BY GEO. W. WELD, D.D.S.

NOTE.—I desire to say before reading this paper (which, perhaps, will occupy twenty minutes), that I shall use the word *pericementum* instead of *periosteum.* I have adopted this because I think it is a better word and more specific.

I purpose, this evening, to direct your attention to a new process of ingrafting new crowns upon the roots of natural teeth.

As an exponent of a method so intensely radical in operation, and yet so conservative in results, I am well aware of the natural repugnance to receiving, much less adopting, new ideas and processes that demand decided change in the principles of practice.

I invite your criticisms if based on careful observation. Though the subject may be imperfectly presented, the effort will be to consider it from a purely scientific stand-point.

Briefly stated, the process is as follows: The root of a tooth, with or without a partial crown is first extracted: the decayed portion cut squarely off with a corundum wheel or saw, just below the lingual and labial points of enamel that extend towards the apex of the root, and in all cases where no absorption of the *alveolus* has taken place, directly under the margin of the gum. A porcelain crown with a tapering screw made of platinum of iridium which has been securely *baked* in the center, perfectly parallel with its length, is then firmly screwed into the pulp canal of the root: the nerve having first been removed and the canal enlarged by reaming out with an engine reamer. To facilitate the introduction of the screw a preparatory thread is cut in the root with a tap. This process establishes a very strong attachment between the natural root and porcelain crown, and with the additional aid of cement in the canal it is made perfect. An exceedingly thin rubber washer placed between the root and crown, renders it impervious to moisture.

When this operation is completed (which requires from fifteen to twenty minutes) the socket is syringed out with tepid water, and the root, with new crown attached, is gently but firmly pressed into its original position. Perfect re-attachment ensues in from two to four weeks.

There is seldom any pain in replanting a tooth, and as nitrous oxide gas is usually administered for extraction, the whole operation is almost painless. The inflammation is never so great and the inconvenience to the patient from soreness of gum is in almost every instance very much less when the root is replanted, than when the wound is allowed to heal in the usual manner.

It is obvious that the method just described pre-supposes, among other essentials of success, the re-establishment of a pericemental connection between the cementum of the root and the pericementum. The sole object of extraction is to secure, by mechanical means, a more perfect and inexpensive attachment than can be obtained while the root is in the mouth. Mere ordinary pivoting of the teeth fails as a permanent operation, and can be attributed only to imperfect and insecure attachments. The loss of pivoted roots is the result of the constant motion, because of the imperfect attachment of the crowns.

Your attention is invited to a consideration of the following points in connection with this method of pivoting:

(1). The necessity of extraction to secure perfect and inexpensive attachment between crown and root, considered in relation to the advantage gained from the use of the screw as a mechanical agent.

(2). The function of the pericementum and its reparative power.

(3). The permanent success of replanting considered in relation to systematic complications and the liability to future pericementitis.

(4). The cementum—its ability to resist caries, considered in relation to its vital power and that of the cementum.

(5). Cheapness and beauty of the operation.

The importance of the screw as a mechanical agent in joining two or more things into one is self-evident. There is no necessity, therefore, of elaborating on this point to convince you that its application, after extraction, renders an attachment between crown and root absolutely perfect; and the operation simple and inexpensive.

The function of the pericementum or fibrous connective tissue of the alveolus is of triple character. First, it retains the tooth in the socket by firmly investing the cementum or external parts of the root.—

Secondly, it preserves the integrity of the cementum by nourishment; and thirdly, it serves as a cushion ; so that a tooth firmly imbedded in the socket and surrounded by a healthy pericementum, that seems apparently immovable, is, nevertheless, susceptible to a slight mechanical change or movement whenever the teeth are closed or pressure is applied. It has been noticed that a tooth having no antagonizing tooth, or opposing obstacle, will generally elongate, consequently it would seem that the action of a force directed against the crown or root, such as from mastication, is an important requisite in preserving the pericementum in a normal condition. Of the reparative power of the pericementum little that is definite is known. We are informed that it is a highly vascular but logy tissue. But vascular tissue signifies life, action and recuperation ; logy tissue just the reverse.

It has been remarked by Druitt* "that a precise pathology requires us to separate repair (process beneficial, gentle and painless) from inflammation (a process injurious, violent and painful.) True it is that both repair and inflammation have the one feature, exudation, in common, and that exudation induced by inflammation may, after inflammation has ceased, serve the purposes of repair." Thus, while it is important to keep the pericementum of the extracted root free from unnecessary irritation, it is none the less true that the greatest danger to successful and permanent repair comes from another source. The success of replanting in the past serves as no criterion for the present ; for this art has not generally been practiced under conditions the most favorable to proper repair.

Teeth have been replanted containing the dead pulp and nerve, with a belief that not only would the root re-attach itself to the pericementum, but that the nerve and blood vessels in the canal would reunite with the nerve and blood vessels severed by extraction.

I think I am justified in saying that the several nerve and blood vessels of an extracted root never remain alive, much less reunite. The death of the pulp and nerve unevoidably follows extraction, and if allowed to remain in the root they become putrescent, degenerating into a putrid mass of such poisonous and irritating properties that even an infinitessimal quantity could hardly fail to retard if not prevent the repair of any tissue.

Again, to facilitate a thorough filling of the canal and pulp chamber, an opening has been made from the apex of the root only ; but this method necessitates the loss of the most important part of the root—that part composed exclusively of cementum, the portion which more than any other possesses a *vital relation* to the pericementum—of the utmost importance. The living corpuscles in the cementum never extend to the cervical portion of the root, but are distributed from the middle of the root to the apical foramen. To cut off the end of a root and expect permanent repair would seem to be an assumption unsupported by any principle of surgery.

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* Druitt's System of Modern Surgery, 1867.

The writer has never observed a condition of things which warranted him in believing that there is ever pericemental ossification either in replanting or transplanting.* But that the pericementum is endowed with reparative power of a high degree and the certainty of successful reattachment to the cementum assured beyond all doubt, is a conclusion based on what has been accomplished even under unfavorable conditions. Consider its helpless position, the irritation it constantly receives during convalescence from the act of mastication, and then the results.

A case of repair of a central incisor root with porcelain crown attached, now presents itself. The operation was performed in October, 1878, for a young man thirty years of age. From a peculiar position of the adjacent teeth the usual silk ligature was abandoned after the first day. I had but little hopes of saving the tooth as the patient had no antagonizing molars, or bicuspids, so that the front teeth—especially the new one—were compelled to do double duty. A few days after the operation, the patient, who, at the time of the operation, was in ill-health, started on a trip to Virginia; and while there, his only child sickened and died. Tired and sick in body, and worried in mind, he returned to New York in an anæmatic condition and told me of his grief. But to my great surprise he told me that the tooth which I had replanted less than two months previous, was as firm as any tooth in his mouth. He said that he had experienced no inconvenience from it after the third day; and, for the first three days, nothing worth mentioning. He has now a tooth which, for permanency and usefulness, cheapness and beauty, cannot be excelled.

The replacing of a tooth in the socket, so far as the writer has observed, never produces chronic inflammation. On the contrary, whatever inflammation results, usually subsides in forty-eight hours, and the process seems to terminate in new formations and the organization of bibulated tissue.

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* The writer is now engaged in a series of experiments by which he hopes to determine the exact physiological conditions of pericemental repair.

It is presumed that a tooth which *elongates* in the absence of an occluding tooth is the result of an increased development of successive layers of cells in the periosteum. This may, in some measure, account for the reported successes in *transplanting*.

We come, now, to the point of considering the permanent success of replanting in relation to systematic complications and the liability of future pericementitis. It is generally admitted, I believe, that the dentine of both crown and root, as well as the enamel, depend chiefly for their vitality on the pulp and the blood vessels in the canal of the root, and that the cementum is nourished externally from the pericementum. Thus it is that when a tooth becomes pulpless, the dentine, deprived of nourishment, very soon becomes dead in opposition to living cementum, and the pericementum is forced to do double duty. Prof. J. Foster Flagg, in an article published in the "Dental Cosmos," for Dec., 1878, says, "that the work of maintaining this unnatural connection devolves upon the peridentium. It is thus that *double duty* is entailed upon this membrane and the functional activity which is then developed naturally places it in the same category with all overworked organs or tissues. If the vocal power is overworked, if it is forced to do double duty, laryngitis is the result. * * * If the sight is taxed until it is made to do double duty, sympathetic inflammation is developed and opthalmia of varied grade soon establishes a connection which entails the habit of recurrence with every trifling irritation. By the same law of vitality an inevitable and irremediable condition of overwork devolves upon the peridentium of such teeth as have lost their pulps."

The pericementum which surrounds a pulpless tooth is susceptible however, to irritation and inflammation just in proportion to the amount of dead tissue left in the root, and dead dentine in opposition with living cementum, or just in proportion to the degrees of overwork this membrane is called upon to perform. And if it is true that pulpless teeth doing normal duty, last for a less time than those with pulps, the cause is attributable to local, rather than systematic complications. The extirpation of nerve and blood-vessels, and a thorough cleansing of the canal from pulp chamber to apical foramen, is not all that is required to insure the pericementum from future irritation, although it may suffice for a time to prevent inflammation. There is still left in the canal an unnatural connection of dead dentine (too often in a putrid condition) with living cementum—a mass of basis substance and dental canalicular, and within each canaliculus a dead dentinal fiber, continuous with living cement corpuscles. This dead dentine in the natural order of things, if not already impregnated by a poisonous fluid from a putrescent pulp, is still capable of absorbing fluids and forming a cause of irritation just in proportion to the susceptibility of the pericementum and the systematic weakness. I wish to urge the position that the nerves and blood-vessels in the canal of a root have but little, if anything, to do with the retention of a normal tooth in the socket ; that is the function of the periosteum. Thus it is that when the dead tissues in the root are removed to an extent which prevents any possible injury to the pericementum, the existence of nerves and blood-vessels, is no longer a necessity. The retrogressive change, therefore, in the pericementum surrounding such teeth as have lost their pulps, and the premature loss of the teeth may be attributed to infection from dead dentine continuous with living cementum.

We come now to consider the cementum ; its capability of resisting decay, and its vital relation to the pericementum. After a very careful examination of nearly two thousand carious teeth, I am convinced that the cementum rarely decays. I have in my cabinet over a hundred specimens with crowns partially or completely destroyed ; but in all cases the carious action ceased at the line of cementum. True it is that under the microscope there can be seen a certain degree of decalcification of the cementum, but it is superficial. The great mass of the cement corpuscles remain unchanged, and the inflammatory elements, so far as I have observed, never cross the line of cement corpuscles, although from the influence of dentinal decay a few of them become enlarged and inflamed. The truth of the statement that the cementum does not decay to any extent, is illustrated by the great number of roots which frequently remain in the socket, for many years after the entire dentine of *both crown and root* has been completely destroyed by caries. It would appear from this that the cementum of a tooth possesses an innate power of resisting inflammation and the influence of decay, as great, if not greater than any tissue of the human body. Dr. C. W. F. Bödecker, in his recent microscopical researches on the "distribution of living matter in human dentine, cement and enamel," says of the cementum (see *Dental Cosmos*, Dec., 1878), "No essential difference is noticeable between the lacunæ and the canaliculi of ordinary bone and those of the cementum ; in both tissues there exists a great variety as to the general arrangement, the size of the lacunæ, the number and ramifications of their offshoots. * * * Each lacunæ contains a protoplasmic body with central nucleus—the cement corpuscle. The nucleus sometimes is relatively large and surrounded by a narrow seam of protoplasm. * * * The net-like structure of both the nuclei and the protoplasm is plainly visible on all cement corpuscles. * * * On the line of the connection with the periosteum the net-work of the protoplasm is usually very broad and the fields of the basis substance show a prevailing globular appearance. * * * Between the calcified cementum and the striated connective tissue of the periosteum, there often exists a narrow zone occupied by closely packed, spindled-shaped protoplasmic bodies only. In the periosteum, itself, there are less numerous partly nucleated protoplasmic bodies, between which the fields of an apparently homogeneous glue-giving basis substance are seen." If, then, the cementum has the power to resist decay: if the microscopical examinations of chromic acid specimens admit of no doubt as to the existence of living protoplasmic bodies in the cementum, can there be any reasonable doubt of the VITAL RELATION which it sustains to the pericementum, when replaced after extraction. In proportion therefore, as there exists this vital relation and this living matter in the cementum, is the general doctrine of repair established. On the other hand, in the degree of living matter in the dentine, deriving its nourishment from the pulp and blood-vessels in the canal, but which becomes dead matter when its source of sustenance is removed, is the certainty of its becoming a cause of irritation to the pericementum, and a still greater certainty of double duty being entailed on that membrane.

The vantage ground which the writer claims, therefore, by this method of replanting considered in relation to permanent repair, is in the increased facility obtained by removing every particle of dead tissue in the canal without destroying the end—the most important part of the root—thus getting rid also of an *infectious* element, viz.: a part of the dead dentine continuous with living cementum, and decreasing, very much, the chances of future pericemental irritation, or entailing *double duty* on the pericementum. If it be urged that the writer has taken negative grounds in support of permanent repair, it cannot be said that his reasons for believing in re-establishing a pericemental connection are negative. His successes are too numerous: his experience too well fortified with proof to justify such a conclusion. Out of thirty cases the writer can record but two failures. The first was a bicuspid with two roots—the bifurcation commencing about midway between the cervical portion and the apex of the root. The second failure was with a first superior bicuspid root with an angle in its center. The masticating force in this case was directed almost entirely against the lingual wall of the socket, which caused inflammation and the loss of the tooth. In the first failure the bifurcation was a contingency for which I was then unprepared ; and the operation, although a failure, was not a failure in replanting. In the second case, it will be observed, that the axis of the root did not coincide with the axis of the crown, and it was imperfectly ligatured. I feel confident, with my present experience in replanting, that failure would not again occur under the same conditions.

An eminent dentist of Paris, Majötot, who has recently been experimenting in replanting, has reported to the Academy of Science, that out of sixty-two cases, fifty-eight of them were successful. From my own experiments, it will be observed that this art, even in its infancy, and necessarily imperfectly practiced, results in only three and one-third per cent. loss. As to the permanency of repair, the writer has positive knowledge, in one case at least. He is assured by one of his patients, now residing in New York, that she had the misfortune, about the year 1838, to receive a severe fall on the face, which resulted in the dislocation and complete separation of the superior central incisors from their sockets. These teeth were replaced by the parent, a few minutes after the accident, and in a short time they firmly reattached themselves to the socket. I had occasion to fill one of these teeth, about five years ago, and I found the pulp completely ossified. The appearance of the teeth was normal. For forty-one years these teeth have remained in her mouth free from all irritation—a living proof of the practicability and permanency of replanting. This method is advisable on account of its beauty and naturalness. The porcelain crowns excelling in appearance any other artificial teeth the writer has ever seen ; being made to correspond in size and shape with the natural teeth. This method also commends itself because the operation requires but little time and is inexpensive to the patient. The great majority of mankind, afflicted with decayed teeth, cannot pay from $25 to $50 for golden crowns or golden pivot teeth, especially if they can obtain something superior at one-fifth of the cost.

It is a lamentable fact that countless roots are extracted and lost each year which, by this method, could be made permanently useful. Let these people who suffer extraction once know that the root of a tooth, after the natural crown is partially or wholly decayed, is valuable to them and can be preserved and that a beautiful crown attached at little expense, and the wearing of artificial plates will, in many cases, be no longer a necessity.

The essay was then made the subject of the evening's discussion.

Dr. ATKINSON: In this paper, as in almost all the work that dentists undertake, there is an attempt to do too much at once, and lest you may think I don't commend it, I will assert that it is my opinion we ought to spend two or three full evenings in the discussion of this very paper and the doctrine it brings out. In the main it is correct, according to my apprehension, but there are certain points upon which I would take a different view from the writer. I assume the whole matter as settled by one remark in the paper, that all the history of past cases has been preceded by an attempt at removing the pulp. That is true, and there comes in the error referred to.

As I said, we cannot do justice to the paper, nor extract the excellent doctrine in it, nor fasten it in our memory sufficiently by simply listening to it. We need to investigate it closely and to criticise it in the verbiage. That is warranted by the opening remarks respecting the use of the term "pericementum" instead of "periosteum." And then the removal of the nerve from the pulp canal crossing the line of demarkation, a form of expression preferred by the writer. I speak of these simple points to show the great necessity there is in not simply gobbling down the whole of any paper and failing to digest any part of it that would be advantageous to us. There are points in it I take decided exceptions to.

Now, they both are supplied with their nutriment from the joint circulation, and the mistake is that the writer follows the old exploded heresy that there are avenues and nerves in the pulp, and then asserts dogmatically that there are no cases where resolution occurs.

There is the evidence in the paper itself of the contradiction the Doctor falls into by the want of attention to exercise the knowledge he has at hand, to prevent making such a mistake. There is another point as to what the connection is between the pericementum and the vascular tissue.

He does not state what the case is, but leaves us to surmise it. It is a case with peculiar indestructable substance that depends upon a certain measure of lime salts being taken up by the protoplasm—it is really the hardening part of the cement—that is the reason it does not take readily.

Now, as to the other point. He is entirely heretical in saying that dentine that is deprived of the circulation from the pulp is dead. By no means. The great mass of pulpless teeth remain alive and have circulation coming from the surroundings and not from the pulp chamber at all ; that is not a regular circuit of circulation.

If you disinfect when you have removed the pulp, it is almost impossible that it should decay. If you will seal it up entirely and prevent the ingress of oxygen you are sure it will resist decay.

Dr. BOGUE : Seven or eight years ago I had a little experience in this direction. I had one failure ; but I am informed that a condition of things is found to exist, which is very remarkable—it is this : that after a successful case of replantation, if at anytime the subject becomes in bad health and abscess again takes place, there is no remedy, and when the tooth is absolutely lost the roots are found to have undergone dissolution.

Dr. WELD : I wish to say one word as regards the life of a tooth after it is extracted. I have known cases where the tooth was extracted and hung by the nerve, so to speak ; the nerve was not severed, and it was put back and remained alive. I have never seen a case where the tooth was extracted and the nerve severed, where the nerve reunited ; there may be exceptional cases, but they are very rare. I think I am safe in saying, as a rule, that the pulp of the tooth never remains alive after the tooth is extracted.

Dr. HOWE : I would like to say just one word. Dr. Atkinson has told us of an exploded heresy—the fact of arteries and veins not existing in the pulp. I won't ask Dr. Atkinson to answer me to-night, but I would like to know how long the heresy has been exploded. I really did not know it, and I don't know of any published authority that says there are no veins or vessels in the pulp. I do remember that Slaighter says that muscular tissues and arteries in the teeth may be constantly seen, and we are told the same thing by all the authorities we are accustomed to refer to.

DEVELOPMENT.

CHAT WITH A RECENTLY DEVELOPED D. D. S.

Of course, as you say. sir, no sane dentist thinks for a moment that he has been developed from a shell-fish, or from anything at all really. He results from the gradual unfolding of a great necessity. He must be, as some of our authorities remark, "to the manor born," and they dwell with rapture on the pink cheeks, the lily hands, and, well—the ravishing *tout ensemble* of our perfect dentist.

"Have the good gentlemen who so nicely picture him, mirrors handy? Are they not afraid of falling in love with their shadow, as did 'Narcissus,' in the old story? (by the way, the first case of yellow fever, I believe, on record.)" said my disagreeable friend, Mr. Drawone, as I got rid of him the other morning with a courteous bow, and pray-call-again simper on my professional face.

I extroduced him on Fifth Avenue, close to an ash-barrel containing a good deal of matter in a transition state, and as I left the tiresome sage in a first-class place for working out a development theory, I came back, sir, to this little sanctum, where I usually wait for, before I "go for" my dentulous and edentulous fellow-citizens. Excuse me a moment, please, whilst I put a "cotton and creosote" into Mrs. Brown's tooth.

That's the last tooth I shall ever "dress" and fill for Mrs. B. She dosen't appreciate good work. I assure you that her front teeth, and some of her back one's are beautifully built up, reproduced I may say, in gold, and yet, she says, "I wish I'd had 'em taken out." Mrs. B., sir, is *non compos*, as we used to say at college.

But I was about to tell you of Mr. Drawone and some of his queer ideas. A few of them have interested me I must say, and had times been better I should certainly, in despite of his having made me very angry, have asked him to stay to lunch.

I guess Mr. D. has dabbled in dentistry a little bit, and though his fancies seem somewhat far-fetched, I should have said, on the spur of the moment, that he had at some time graduated in one of the many noble institutions between here and the farthest West, had he not at last shown such unpardonable ignorance of, and lack of sympathy with so many things connected, nay, I may say, woven with the life of our profession in its at present largely developed state.

What he said about "surgery," seemed to me sensible, if not exact. He suggested that the injudicious carving of human flesh, owing to the frequent State and family differences of kings, queens and aristocrats, in the wretched old countries, put the barbers on their mettle, and so the judicious carving of modern "surgery" has resulted.

"The barber," he said, "sir, has fostered, and fosters still, a great many absurdities (paying ones of course, as do many other professional gentlemen), but we can't forget that when he had our ancestors by the nose in the exercise of his art, his keen brain, as well as his keen blade, was at work. So he came to know how, not only to heal the wounds he himself inflicted, but to deftly put a 'tourniquet' on the arm or leg of my Lord Tom-noddy, or, of any other fool who happened to be 'pinked' in an affair of *honor*, on his own account or in somebody else's matter, and afterward to let blood for, and physic his sometime patients, recovered—but in a semi-comatose condition from the undue celebration of their recovery. At one time he made a fashion of bloodshed, this barber, and every well disposed and law-abiding citizen was regularly 'cupped,' as one would now-a-days be shaved or have his hair cut. The same citizen, owing no doubt to a weakness brought about by submitting so often to be blooded, allowed the 'surgeon of the future' to shave all the hair from his head and supply him with a 'wig.'"

Mr. D. said that this old-time surgeon also tried his hand at drawing teeth and had had, considering his poor appliances, very decent success.

"Ah! we don't draw teeth now, my dear sir," said I, interrupting him. "We reproduce them. But don't let me break the thread of your remarks."

"You don't draw teeth now," he said; "what, never?" "Well" said I, "hardly ever."

"You will tell me how that is by-and-bye," said he, "for the present I was about to remark that 'Physic,' the art of medicine, has hardly kept pace with the scalpel. Medicine seems to me to be still in rather a suggestive state. Don't you think so?"

"My dear sir" said I, "you are right, but, remember the grand axiom, '*Fiat experimentum in corpore vile.*' It must occur to you, I think, that the *experimenta* which can be carried on with the scalpel can be carried on so long as there is anything to cut at, but, *experimenta* in physic, or, shall I say the theraputic art, necessarily end with the life of our subjects. Hence, much ground has often to be gone over again, as the man found, whose theory of camel feeding unluckily failed when the animal's provender had actually been brought down to one straw a-day. We (I say we because therapeutics belong to us dentists) can but 'observe, compare, reflect and record,' and when, as has been ill-naturedly remarked, the 'record' comes before the 'observation, comparison or reflection,' I say that we can use the 'deductive' as well as the 'inductive' process of reasoning in working out our aims."

Mr. D. said he would'nt discuss that matter just then, and I felt that I had got him in a "tight place."

I only tell you this, *en passant*, for Mr. D. ventilated so many relevant and irrelevant ideas before coming to his great point, that, although but quite recently matriculated, graduated, or, say passed, I feel quite unable to make a codex, or, tabulate them. Hem ! !

He said, then, "returning to the subject of dentistry, Has the art developed much in the last quarter of a century?"

The impudence of the question almost took my breath away, but, after a sip of ice-water, I felt sufficiently recovered to reply: "Sir, the art, the great art of dentistry, has been immensely developed, and I, amongst countless others, have been very recently evoluted in consequence of that (I may say) extraordinary development. Why, sir, in about two years, and at a cost of some two or three hundred dollars only, the evolution of a 'dentist' can now be perfected."

"Ah!" said he, "poor old B. told me it took him five years before he could make a decent gold plate, and he was no fool either. But times change, times change."

"Sir," said I, grasping an "electric mallet," "The lightning serves us now. Look at this," and taking up a "pneumatic" instrument for the same use, "look at this! The four winds of heaven collected into and ejected from this little rubber ball, are our slaves. We have also, the 'automatic' mallet, and various hand mallets. The steel mallet for a live blow, the lead mallet for a dead blow, and various wooden mallets, giving all sorts of blows, beween the lively and the deadly. We have, sir, the 'rubber dam;' we have run the gamut of 'pluggers,' deeply serrated, lightly serrated, and not serrated at all — the glass-hard polished, the broken, and even the ivory point. We have the 'dental engine,' and half-a-hundred chairs, so that we can now get a patient into any position, but that of inside-out: and, sir, let me say to you, in the words of an eminent friend of mine, (until recently a distinguished goldbeater). 'Our art now is eminently reparative.' If there is the faintest suspicion of a tooth anywhere round, we 'go for' that suspicion, and by collegiate and proper methods we convert that suspicion into a dental certainty. You talk of 'gold plates,' sir, they are no longer a necessity. If people are stupid enough to neglect having, or can't afford to have their dental suspicions converted into certainties, and require artificial teeth *on* gold instead of, *of* gold—well! I don't make 'em. I advise rubber."

Mr. D. seemed to be a little bit taken a-back at my clear demonstration of the progress of dentistry. He only sighed, and then told me some nonsense about his having recently been in Paris where they still despoil the dead jaws to garnish the living, and spoke of a system of "suction," the main feature of which seems to be a screw-bolt through the cerebellum.

I was a little bit hot and angry with him by this time, and though, as I told you, I politely bowed him out, I felt as indignant with him as any true dentist would, and hope he won't keep his promise to call again. Yet, still, I would have lunched him if I had been certain about that cold mutton.

Pray excuse me now. Mrs. Fortescue Smythe is my next patient, and just due—Good morning.

"NEMO."

TRANSACTIONS
OF THE
ODONTOLOGICAL SOCIETY,
OF GREAT BRITAIN.

ORDINARY MONTHLY MEETING, June 9th, 1879.

EDWIN SAUNDERS, Esq., President, in the Chair.

The Minutes of the previous Meeting having been read and confirmed,

The President announced that the following candidates had been duly nominated, and would be ballotted for at a subsequent meeting:—

Charles Foran, Marshfield House, Eastbourne.

George W. Parkinson, M.R.C.S., 36 Sackville Street, Piccadilly.

Francis Ewbank, M.R.C.S., L.S.A., 19 Savile Row.

Adam Taylor, M.R.C.S., Civil Surgeon, Indian Medical Service, Peshawur.

The following gentlemen were then ballotted for and elected Members of the Society:

Thos. H. Roberts, L.D.S., R.C.S.E., 49 Charlwood Street, Belgrave Road.

Edward Fothergill, L.D.S., R.C.S.E., Esq., Newcastle-on-Tyne.

Edward George Betts, L.D.S., R.C.S.E., Holloway.

Chas. D. Cooke, M.D., Brooklyn, N. Y., Non-resident.

George L. Parmelee, M.D., D.M.D., Hartford, Connecticut, Non-resident.

George T. Moffatt, M.D., D.M.D., Boston, U.S., Non-resident.

The President announced that Mr. Howarth had presented to the Museum an aluminium and rubber denture, which had been worn for fifteen years. The plate had not been struck up, but had been made by pouring melted aluminium into the cast ; it had then been trimmed and vulcanized. Notwithstanding the number of years it had been in use it showed no signs of deterioration.

Mr. Storer Bennett showed a contrivance for twisting malplaced teeth, which he had found very useful. Being very simple, he had no doubt that something similar must have been adopted by others, though he had not been able to find any mention of such an apparatus either in the Society's Transactions or elsewhere. It consisted of a vulcanite plate, in which the rubber was thick behind the tooth to be moved ; but cut away immediately behind the part to be drawn in. Through the thick rubber a tunnel was cut, extending from immediately behind the outstanding edge of the offending tooth to the lingual surface of the plate, and deeply countersunk at its posterior extremity. This tunnel was for the reception of a hook made of half-round gold wire ; the front of the hook was adjusted to catch on the projecting edge of the tooth, whilst a small "jump ring" was soldered to the other end. The back of the tunnel being countersunk, the ring was protected from irritating the tongue. Two short slits were cut in the free edge of the plate opposite the posterior extremity of the tunnel, and their anterior extremities joined by a shallow groove on the palatine surface of the plate. A small elastic rubber band was drawn into the grooves and connected with the ring at the back of the hook. No harm could be done to the palate by the elastic band, as it lay in the groove, and was flush with the surface of the plate. By this plan no cumbersome and unsightly apparatus was visible in the front of the mouth. Although the traction was slight at any given time, yet, being constant, its actual moving power was very great. The teeth were moved with but little pain. It was easy of application, and by giving the patient a few extra bands, with instructions to change them every few days, many unnecessary visits were avoided.

Mr. Chas. Tomes exhibited a regulation plate, the invention of Mr.

Palmer, of Cheltenham, which he said was one of the simplest and best he had yet met with. Mr. Palmer stated that he had succeeded in getting with this instrument an expansion of the whole arch varying from $\frac{1}{16}$th to $\frac{1}{4}$ inch per month, with very few attendances.

The President then called attention to an apparatus made by Messrs. Winderling, of Milan, which had been sent for exhibition by Mr. C. J. Fox, and which had been designed to facilitate the packing of celluloid and vulcanite. It consisted of a light iron frame ; in the center of this was a small platform on which the flask rested, raised about four inches from the table. Beneath the platform were two burners for gas or spirit,—one for heating the flask to 212° F., the other to heat the celluloid to 280° F. A roll of celluloid was placed in a cylinder attached to the face of the flask, and when sufficiently liquefied was forced into it by a piston worked by a screw with lever handles. The advantages claimed for the apparatus were :—First, that the plaster not being heated beyond 212° F. remained very hard, so that metal models were not required; secondly, the case being flasked in one solid body of plaster and never opened, there was very little chance of raising the bite or of displacing any teeth, bands, etc. To obviate the difficulty of removing pieces from the solid block of plaster small brass plates were inserted while flasking, in such a manner that the plaster easily separated into pieces on removal from the flask. There being no steam pressure, there was no danger from this source.

Mr. Oakley Coles said that, from his experience of the results obtained from other machines which had been designed for the same purpose, he could not help thinking that Mr. Winderling had introduced into this several unnecessary complications. He knew of several already in the market,—for instance, the machine invented by Mr. Gartrell, of Penzance, and that introduced recently by the Dental Manufacturing Company,—which would complete the process in considerably less than two hours. About twelve years ago a very similar apparatus had been brought before the profession by Mr. Payne, of Great Russell Street, but the results obtained by it were not so satisfactory as those obtained by the ordinary method. He failed to see how raising the bite could be avoided by this process more than in any other ; this was due to the teeth sinking in the plaster, and this would be quite as liable to occur in the apparatus before them as in others with which they were familiar. It was, no doubt, a very ingenious piece of mechanism, and the inventor deserved great credit for having brought it to such perfection ; but it appeared to him too elaborate and complicated, and not likely to give any better results than the simpler processes with which they were already acquainted.

Mr. Hutchinson said he had had the advantage of seeing the apparatus worked by Mr. Winderling himself, and he thought it offered more advantages than Mr. Coles had given it credit for. Although complicated in appearance it was really simple enough in structure. In the first place the plaster was never exposed to wet heat, nor above 212° F., and consequently remained very hard, so that it was impossible to squeeze the teeth into the plaster: then the celluloid entered the flask by an aperture only one-sixth the diameter of the piston; and when full the surplus escaped through three small openings at the back, so that there was no undue pressure on the teeth. And lastly, the uniform temperature at which the celluloid was kept rendered it much less liable to shrinkage. Still further to obviate this tendency, Mr. Winderling advised that the plate should always be kept in cold water when out of the mouth. He asserts that celluloid will never warp so long as it is kept moist.

Mr. Coles asked how it was that Mr. Winderling had come to the conclusion that dry heat was better than moist for working celluloid: most experimenters had found steam or oil best to work with.

Mr. Weiss said that he considered the point on which Mr. Winderling appeared to lay so much stress, that of working the celluloid at a temperature not exceeding 212°, was itself a great mistake. The great objection to the use of celluloid was its liability to scratch and fray in the mouth. He had found that this liability was greatly diminished by submitting the celluloid to as high a temperature as possible, short of destroying its composition. A plate which had been kept for half an hour at a temperature of 280° would be found to be much harder and denser in structure than one which had not been heated beyond 212°.

Mr. Charles Tomes said he could not quite understand how the difference between the diameter of the piston and that of the aperture through which the celluloid was forced could reduce the pressure on the model?

Mr. Hutchinson admitted that he had been led into a fallacy on that point, but the three vents to which he had called attention were quite sufficient to prevent the pressure from being excessive.

Mr. Turner remarked that celluloid often showed a tendency to warp after it had been in use for some time; was this tendency diminished by Mr. Winderling's process?

The President answered that Mr. Winderling laid great stress on the importance of always keeping the plate moist. He advised that it should be kept in a metal case on a damp sponge, and that care should be taken never to allow it to get dry.

Mr. Oakley Coles said that in a paper he had read before the Society about ten years ago he had pointed out that celluloid behaved in this respect very much like bone. Alternate moistening and drying favored warping; but if the plate was kept in one state or the other but slight alteration in shape would occur.

Mr. Hutchinson showed a mouth mirror illuminated by the electric light, which had been designed by Messrs. Coxeter of Grafton-street; it was intended for use in dull or foggy weather. It was similar in some respects to that which had been brought forward by M. Trouvé of Paris, but differed from this in other important particulars. The battery was a "constant" one, producing a direct primary current of great quantity and intensity. No strong acids were used, the power being generated by the action of platinum and peroxide of manganese. The light was obtained in the same manner as Trouvé's, by the incandescence of a short piece of platinum wire, but a rheostat was fixed in the handle by which the passage of the current could be regulated, and to prevent the fusing of the platinum. It would give a steady light for from 20 to 30 minutes. Messrs. Coxeter had also arranged a means of keeping the mirror cool, by passing a current of water round the back of it. The apparatus could also be used for cauterizing.

Mr. Coleman said it might be in the recollection of some of the older members that a similar apparatus was exhibited before the Society some years ago. The illumination was more powerful than that which Messrs. Coxeter were now showing, for it enabled one to see through the alveolar process so that the outlines of the fangs of the teeth were distinctly visible. He had not been able to find any notice of it in the Transactions, and could not then call to mind when or by whom it had been shown.

Mr. Robert Hepburn said that the apparatus spoken of by Mr. Coleman, was the invention of Mr. Hart, of Edinburgh, a very eminent practical electrician. He remembered its being exhibited about ten years ago, and Mr. Coleman had not exaggerated its capabilities. It was a far more brilliant light than the present.

Mr. Oakley Coles said that M. Trouvé's apparatus was intended primarily for use with the laryngoscope, and the great objection to it was that the platinum got melted occasionally by the intensity of the current, and the drops of fused metal falling on the vocal cords burnt holes in them. He was glad to see that in Messrs. Coxeter's apparatus this was guarded against, by enclosing the platinum in a glass tube. He knew that of late several individuals had been experimenting with the view of making the electric light available for mouth illumination, and he had no doubt their efforts would ultimately be successful.

Mr. HUTCHINSON showed a supernumerary tooth which he had removed from the mouth of a patient 13 or 14 years of age: it occupied the place of a permanent lateral. On examining it he found that the root was much expanded and filled with pus, and on washing this out he found what appeared at first sight to be a second tooth inside of it near the apex. The idea struck him that the missing permanent lateral had got shut up inside the supernumerary tooth, though it was difficult to imagine how such a thing would occur. But, on examining the specimen under the microscope, he found that what appeared to be a second tooth was an abnormal dipping down of the superficial enamel. The tooth, although at first simple, was really composed of two denticles, each with a separate pulp cavity. Similar cases were mentioned in Mr. Tome's work (p. 227, 1st ed.), but they were stated to be very rare.* Mr. Hutchinson desired to express his indebtedness to the curator for the assistance he had given in preparing and identifying the specimen.

Mr. OAKLEY COLES then showed, for Mr. Hatfield, of Old Burlington street, a large mass of salivary calculus which had been removed from the mouth of a lady about 70 years of age. Before removal it formed one mass, which almost covered three incisors, a canine, and a a small bicuspid stump. It was supposed to have been in course of formation for about two years.

The PRESIDENT then called upon MR. ARTHUR UNDERWOOD to read his paper "On the Functions of the Nerves of Taste."

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* Tomes's "*Dental Surgery*," page 227.—"In some instances the defective tooth is not the subject of any obvious deformity, though it is usually somewhat irregular in shape, and enlarged at some point. The enamel investing the crown may be, and often is perfectly well developed; but we shall find at some point a slight depression, in the centre of which is a small dark spot. If the tooth be divided through its long axes we shall find that the dark center of the depression is in fact the choked-up orifice of a cavity situated within the substance of the tooth, external, however, and perfectly unconnected with the pulp cavity. If the section be a fortunate one, we shall be able to trace the enamel, as it is continued from the exterior of the the tooth through the orifice into the cavity, the surface of which is lined more or less completely with this tissue."

ON THE FUNCTIONS OF THE NERVES OF TASTE.

Mr. President and Gentlemen,—My interest has been aroused concerning the subject upon which I have the honour to address you to-night by a paper upon the question forwarded to me some months ago from Dublin.

The author, Dr. Nixon, after giving the particulars of a case of double facial paralysis, enters somewhat fully into the more recent opinions of physiologists upon the nerve supply of taste; and, having read his remarks with great interest myself, I thought some *résumé* of the kind might prove interesting to this Society. Cases very similar to Dr. Nixon's are being constantly brought forward in the medical papers, and the conclusions to which they point appear in a more forcible light when the evidence is grouped than when it is isolated.

For a long time the almost universally acknowledged view of physiologists was that the sense of taste was conveyed to the cerebrum by the agency of two nerves—the glossopharyngeal and the lingual branch of the 5th pair—the former presiding over taste at the root of the tongue, the latter at the tip and sides. This opinion was supported by the apparently conclusive evidence that section of either nerve produced loss of taste in the region it supplied.

The actual result of the experiment was true. The deductions of the experimenters, as is often the case, have been since shown to be mistaken as far as the lingual was concerned. Since the question first became a matter of dispute the controversy has led to many and various opinions being alternately entertained, and then, as evidence accumulated, abandoned. I do not tkink there is perfect unanimity upon the subject yet, but there is at least a growing inclination to adopt one view among a large section of physiologists.

I would premise that the title of the glossopharyngeal to supply the special sense to the root of the tongue never having been disputed I shall not allude to it, and my reference to the sense of taste in the future part of the paper will be understood to mean the sense in the antero-lateral portion of the tongue only.

During the discussion of the question certain important facts have been fully established.

1. Section of the lingual after the chorda tympani has joined it produces loss of common sensation and loss of taste.

2. Section of the lingual before the chorda tympani joins it produces loss of common sensation, but does not affect the sense of taste.

3. Section of the chorda tympani before it joins the lingual produces loss of taste, but does not affect common sensation.

Furthermore, the evidence of disease is that—

1. Complete paralysis of the 5th pair, including of course the lingual, affects sensation, but not taste. (*Vide* Dr. Althaus' case—*Trans. Med. Chi.* Vol. LII).

2. Paralysis of the 7th pair (due to lesion in its interpetrosal course) affects the sense of taste, but not common sensation. (*Vide* Dr. McDonnell's case—*Trans. Med. Chi.*, Vol. LVIII).

The evidence by which these facts have been established is so voluminous that it would be impossible to reproduce it here, but if any gentlemen would be interested to hear the particulars of the experiments in the cases of paralysis I shall be happy to quote some of them in my reply.

These facts point at once to one conclusion—that the theory that the lingual *per se* has any influence over the special sense of taste must be abandoned, it being clear that such influence is transmitted to it by the chorda tympani.

Whence, then, does the chorda tympani derive this power over a special sense?

That it has it before it leaves the 7th in the aqueduct of Sylvius is plain from the fact that lesion of that nerve in that situation, either by disease, as in Dr. McDonnell's and Dr. Nixon's case, or injury, as in the cases of Vizioli, Stick, or Lotzbeck, produces loss of taste.

It is equally evident that the 7th itself cannot communicate the power, for two reasons:

First, because the portio dura is a purely motor nerve, and could scarcely be accredited with a special sense.

Secondly, because central paralysis of the portio dura, or section of it nearer to its origin than the gangliform enlargement, does not affect the sense (Austin Flint, Hughlings Jackson, Hermann).

In the case of the 7th, as with the lingual, the chorda tympani is only a guest, and not an offspring.

The next step in tracing this influence back to its cerebral source was to discover by what channel the chorda tympani joined the 7th.

There are four routes by which it may do so.

1. *Viâ* the great superficial petrosal from Meckel's ganglion.
2. *Viâ* the lesser superficial petrosal from the otic ganglion.
3. *Viâ* the external superficial petrosal from the sympathetic plexus on the middle meningeal.

4. *Viâ* the "nervus anastomoticus" glossopharyngeal outside the stylomastoid foramen.

No. 3 may be dismissed at once, as being simply vasomotor from the sympathetic.

In cases 1 and 2, that is from Meckel's ganglion, or from the otic, we should again be referred to the 5th pair for the original source.

At this point I must allude to a series of experiments by Schiff, undertaken with a view of clearing up this point.

He divided the 2nd division of the 5th above Meckel's ganglion ; then the branches going to Meckel's ganglion ; then the great superficial petrosal nerve, and finally removed Meckel's ganglion altogether.

His conclusion was that some of the taste fibres at least left the cerebrum with the 5th pair, passing along the 2nd division to Meckel's ganglion, reaching the 7th from thence by the great superficial petrosal, and leaving it as chorda tympani.

In support of this view is the analogy of the horse, in which animal, as was shown by Professor Owen, the great superficial petrosal leaves the portio dura as chorda tympani without becoming incorporated with its fibres at all.

Yet this view has, I think, been shown to be incorrect, both by the experiments of man and of nature.

Vulpian and Prevost repeated Schiff's directions with different results, and showed that after ablation of Meckel's ganglion the sense of taste persisted. But, after all, dissections involving such extreme nicety are very liable to error. Again, it is difficult to be sure about the persistence or extent of the sense of taste in the lower animals, their power of communicating their impressions being necessarily limited ; and valuable as experimental evidence is, evidence derived from the observation of the results of disease or accident upon the human subject is still more satisfactory and conclusive, not only because the dissections are more exact—the experiments, in fact, conducted with greater nicety, and with less implication of other nerves—but also because a human patient can give the observer a better account of his own sensations.

It is then to the results of disease that I now turn for further elucidation of the matter. The two cases I allude to are chosen from very many because of the very high authority upon which they rest, and because they are eminently typical and very conclusive.

In the 52nd volume of the *Med. Chi. Tr.*, Dr. Althaus quotes a case of complete loss of function of the whole of the 5th pair unaccompanied by any other lesion. The loss of common sensation over the front portion of the tongue was so complete that the organ was actually wounded by the teeth without the patient being conscious of the fact. The sense of taste was quite unaffected, and this was demonstrated by a series of delicate and ingenious experiments, the details of which are given in the Transactions.

The second case is one cited by Dr. McDonnell, also in the *Med. Chi. Tr.* (Vol. LVIII).

It is a case of paralysis of the 7th, or portio dura, due to disease of its interpetrosal portion. In this case, while common sensation over the front of the tongue was as keen as in the doctor himself or any of the surrounding students, the power of taste in that region was quite lost.

The paper by Dr. Nixon, of Dublin, to which I am indebted for much of the material of the present paper, contains the particulars of a similar case to Dr. McDonnell's.

These are types of numerous cases, all of which show that though the special sense undoubtedly leaves the portio dura by the chorda tympani, it does not reach it from Meckel's ganglion, or from any other part of the 5th pair.

Is there then any other source of influence to the facial besides Meckel's ganglion and the otic? I have already alluded to a communication from the glossopharyngeal reaching the facial outside the stylomastoid foramen, called the "nervus anastomoticus," but this is not the only communication the glossopharyngeal sends to the 7th.

The glossopharyngeal gives off a tympanic branch which communicates with both the greater and the lesser superficial petrosal nerves between their ganglia and their union with the facial. Here then is an influence reaching the facial by the petrosal nerves which would obviously not be disturbed either by paralysis of the 5th pair or by the removal of Meckel's ganglion. Moreover, it is a significant fact that this influence is derived from a nerve (the glossopharyngeal) which has always been regarded as undoubtedly a special nerve of taste.

According to this view then the glossopharyngeal would preside over the whole sense of taste, both at the root and over the tip and sides of the tongue. And I must urge that it seems more in accordance with common sense to refer this taste-sense to the empire of one nerve and not two.

It is more in accordance with analogy, as such a phenomenon as a special sense depending on two nerves is unparelleled in nature. Sight, hearing, smell, each has its nerve specially adapted to convey its special impressions to the sensorium. They are not apparently in need of assistance from a motor or a sensory nerve to carry out their function. Why should it not be the same in the case of taste?

Anatomy shows us an unbroken line of communication between the glossopharyngeal and the tip and sides of the tongue. To recapitulate the chain, it runs from the glossopharyngeal by the tympanic branch to the petrosal nerves to the facial, leaves the facial as chorda tympani, joins the lingual, and so to the tip and sides of the tongue.

Experimental dissection and disease both point, as I have endeavored to show, to the fact that if this line of communication be interrupted the sense of taste over that region is lost; that if the chain of communication be left intact no other dissections or injuries affect the sense.

Analogy would suggest that there is likely to be only one nerve of taste.

The title of the glossopharyngeal to be considered a special nerve of taste has never been disputed.

From the due consideration of these facts, I myself can have no hesitation in arriving at this conclusion, as far as the light thrown upon the subject warrants any conclusion, that the glossopharyngeal is the only nerve of taste, and that the 2d and 3d divisions of the 5th pair have as little to do with this sense as the 1st division has to do with the sense of sight.

Of course there are many minor difficulties to be cleared up, and I do not doubt that in advancing a view that, although sanctioned by Hermann, Dr. McDonnell, Dr. Althaus and many others, can scarcely be said to be universally accepted, I lay myself open to questions I may not be able to answer, and arguments I cannot demolish. I think there is a very strong case for the glossypharyngeal, which will also take much to demolish it.

One more point is of interest, and that is, having discussed what is the nerve of the special sense of taste, to decide what the special sense of taste itself is,

Whether it is a special sense of the same order as the sense of sight, or hearing, or smell?

Whether much of it may not be due to the assistance of the sense of smell? Every one knows how greatly a cold and the subsequent blocking up of the schneiderian membrane and suspension of the sense of smell affect the kindred sense of taste. We all remember the time-honored practice of holding the nose while taking medicine, and can all speak warmly of the advantages derived from the partial suspension of the sense of taste thereby. Moreover, most substances that excite taste excite smell also, and in most cases the taste very much resembles the smell.

That these facts indicate a close relation between the two senses is clear, but to argue from them that taste does not exist by itself (as has been done) is, I think, straining a point.

The sense of taste is certainly not so specialized—so thoroughly different from common sensation—as sight or hearing, but I think the difference is due, not to the nature of the nervous fibres, but to the degree of elaborateness in the end organ by which the sensations are transmitted to the nerve.

At one time in intranterine life all nervous elements were very similar. Michael Foster has beautifully described the simplest nerve as being "a strand of highly irritable protoplasm, stretching from one cell to another." All these strands and their cells were equally susceptible to waves of light or waves of sound, or the sense of touch. Presently various bundles begin to adapt themselves for their special mission, much as medical students, after their general medical education, begin to study specialties, and, forgetting much of the little they ever knew of the other branches of the great profession, devote themselves to become specially skilled and adapted for the special branch that is to be their adult pursuit. In both cases some become more specialized, some remain somewhat generalized, and curiously enough the senses in which the nerves most specialized are notable fields of specialty for the surgeons—the eye, the ear, and the mouth.

I feel conscious that I have already strained your patience to its utmost, and must thank you very much for having listened so patiently to the lubrications of so young a member of your Society; and may I suggest, in conclusion, that to deny the existence of the sense of taste would be gross ingratitude, and that it would be hardly less ungrateful to deny the credit of whatever pleasurable sensations we experience through the medium of this sense to the glossopharyngeal nerve.

DISCUSSION.

The PRESIDENT congratulated Mr. Underwood on his successful paper: he had treated the subject in a very clear and able manner. It was very gratifying to him, as one of the original members of the Society, to find the second generation of old and esteemed colleagues thus coming forward to support it; the fact spoke well for the future prospects of the Society. There were many present who were more capable than himself of throwing light on the subject; he would, therefore, leave them to express their opinions on the points which Mr. Underwood had raised.

Mr. COLEMAN said he felt obliged to confess that during the years which had elapsed since his student days his knowledge of minute anatomy, with reference, for instance, to the communications between the ninth and fifth pairs; had become rather rusty. But he well remembered that, even in his time, the glosso-pharyngeal was generally considered to be the special nerve of taste; whilst the lingual branch of the fifth was thought to supply the tactile papilla on the fore part of the tongue. So that Mr. Underwood's conclusions did not strike him as anything very novel. It must be remembered that much that was generally considered to be taste was really derived from the sense of touch,—as, for instance, the sensations produced by salt, mustard, &c. Then, again, the sense of smell largely assisted the sense of taste. This was well exemplified by the "bouquet" of delicate wines, which was really the impression produced on the sense of smell by the volatile ether which they contained. Mr. Underwood's investigations had, therefore, only confirmed the correctness of what he had been taught—viz., that whilst the eighth nerve was the special nerve of taste, the impressions we derive from it were greatly assisted by the sense of touch as conveyed by the branches of the fifth; and by the sense of smell conveyed through the filaments of the olfactory nerve.

Mr. OAKLEY COLES said he should like to ask Mr. Underwood if he had made any investigations as to the power of the soft palate to convey the sense of taste? He remembered reading some very interesting experiments made on a man whose tongue had been completely excised for cancer, by Mr. Annandale, of Edinburgh, which went to prove that the soft palate possessed this power to a considerable extent.

Mr. HUTCHINSON asked Mr. Underwood if he could explain why patients complained that they could not taste when the hard palate had been covered by a suction-plate? If part of the plate was cut away, they said they could taste better. The special nerve of taste was chiefly distributed in the neighborhood of the papilla circumvallata. Why, then, should the sense of taste be destroyed by covering the hard palate? Had any of his researches thrown any light on this point?

Dr. WALKER said he also had great pleasure in congratulating Mr.

Underwood on his interesting and well-digested paper. With regard to the lost of taste which resulted from covering the hard palate, he thought his experience would enable him to offer a tolerably satisfactory explanation. About eighteen years ago he fitted an upper denture for one of the best tea-tasters in the city. For three weeks or a month afterwards this gentleman was almost incapacitated from following his business. Dr. Walker with difficulty persuaded him to continue to wear the denture, and suggested at the same time that in tasting he should place the tip of the tongue between the lips. The manœuvre was perfectly successful, and in a short time the patient was able to do his work as well as before. He believed that the lost of taste was due to the contact of the tongue with a hard dry surface; moisture was certainly necessary for the clear perception of taste. This explained also the loss of taste which accompanied a cold; the nose became obstructed, respiration had to be carried on through the mouth, and the tongue was kept in an abnormally dry state. More recently he had fitted an upper palate for a wine-taster. This patient had at first the same difficulty in following his employment; but now, by touching the lips with the tongue, he is enabled to distinguish the qualities of wines as well as before.

Mr. Oakley Coles said the most curious cases he had met with were those in which patients had lost part of their hard palate, and had at the same time lost their taste: but they recovered this when an artificial palate was fitted. He believed that the loss of taste which followed the insertion of a hard rubber palate was due to the fact that the tongue came in contact with a hard substance to which it was not accustomed, and that as soon as the tongue became habituated to this novel sensation the power of tasting returned.

Mr. David Hepburn said that the fact that wearing an artificial denture in the upper jaw would impair the sense of taste might be traced to the same principle which explained the loss of taste which accompanied impaired function of the olfactory nerve—viz., that all the senses worked in concert, each one assisting the others. So if common sensation be impaired the sense of taste was diminished, and in this way an unnatural substance coming in contact with the tongue would indirectly but not the less decidedly affect the sense of taste. He thought that Mr. Underwood appeared to lose sight of the real use of the chorda tympani. The portio dura was essentially a motor nerve, and three of the cephalic ganglia obtained their motor power from it; thus Meckel's ganglion got its motor supply by the great petrosal, the otic ganglion by the lesser petrosal; and it seemed to him natural to suppose that the submaxillary ganglion obtained its motor supply by means of this chorda tympani. It seemed to him also more rational to suppose that the fifth nerve had itself the power of conveying a sense of taste than to attempt to explain the fact by such roundabout and complicated connections as Mr. Underwood had endeavored to trace. With regard to the support which Mr. Underwood's theory received from experiments on animals, it seemed to him to be a very difficult thing to decide between mere sensation and taste in animals, which had no power of expressing their feelings. Mr. Underwood had said that division of the seventh nerve in the petrous portion of the temporal bone was accompanied by loss of taste; he should be glad to know whether under these circumstances taste was lost on both sides, or only on the side supplied by the cut nerve?

Mr. Underwood, in reply, said that Mr. Coleman's idea that true taste was only derived from the back part of the tongue, and that the sensation which was mistaken for taste at the tip was a compound of touch and smell, was one which was believed in by some authorities. There was, however, no doubt that the fore part of the tongue did possess the power of appreciating taste to some extent Others, unable to deny this fact, had sought to explain it by supposing that sapid substances placed on the front of the tongue were very quickly dissolved, and that particles were carried back with the moisture. Without denying altogether the correctness of this supposition, the fact remained that a distinct difference in the power of tasting had been observed both after section of the chorda tympani and in patients in whom this nerve had been injured by disease. He thought that the explanation already given of the loss of taste, which followed the insertion of an artificial palate, was probably the correct one—that it was due to the tongue coming in contact with a surface to which it was not accustomed; and that the power would be recovered after a time, as the organ became accustomed to the presence of a foreign body in the mouth. With regard to Mr. David Hepburn's criticisms, time would not allow him to reply to them fully He could only refer him to the authorities already quoted, feeling sure that if he would read them carefully he could hardly fail to be convinced. Mr. Hepburn had asserted that the chorda tympani was a motor nerve; but Dr. Hughlings Jackson and others had cut this nerve, and then stimulated the peripheral portion by means of a galvanic battery, with no effect upon muscular movement. It seemed to him quite as unlikely that the tongue should be provided with two motor nerves as that it should have two nerves of taste. Dr. McDonnell's case was especially conclusive on this point. The chorda tympani had been destroyed by disease; yet, although the patient had lost all perception of taste over the front of the tongue, sensation and motion were unimpaired.

The President, after proposing the usual vote of thanks, which was carried unanimously, announced that at the next meeting (in November) he hoped Professor Flower, of the Royal College of Surgeons, would read a paper, "On some Peculiarities in the Development of the Teeth and Jaws in certain tribes of Circassians and Mongolians."

The Meeting then terminated.

ERRATUM.

On page 274, of July issue, 12th line from top, for "On the Atmospheric Treatment of Diseased Pulp," read, "On the Antiseptic Treatment of Diseased Pulp."

THE TONSILS.

BY W. V. J. MOORE, L. D. S., R. C. S.,
Dental Surgeon to Plymouth Dental Dispensary.

The dentist has often to treat conditions of the mouth and fauces, preparatory to that of successfully supplying the loss of teeth by an artificial substitute. Enlarged tonsils, inflamed or ulcerated sore throat, often are an index of health, feebleness of constitution, or scrofulous tendency, and sometimes of a chronic nature connected with the varieties of acute cynanche.

The tonsils are two prominent bodies of glanular tissue, one on each side of the fauces, between the anterior and posterior pillars, and secrete a fluid that bears a general resemblance to saliva, which serves to lubricate the food in its passage from the mouth to the stomach, and materially promotes the process of digestion. The tonsils are subject to different kinds of swelling, varying as much in their nature as in their consequences; some, for instance, are rapid in their progress, and are frequently observed to affect persons of a sanguineous temperament. They are also prone to attack young people and such as are exposed to hard labor, and have all the essential characteristics of inflammation. Other swellings of the tonsils, slower in their progress, occur in damp cold weather, and in indolent phlegmatic constitutions. Another kind, usually contagious, readily falls into a sloughing gangrenous state; hence the various species of angina have been named inflammatory, catarrhal and gangrenous. That enlarged tonsils may be cured by attention to the general health, that which tends to strengthen the system of the human frame, has been proved beyond a doubt.

Stubborn cases have been relieved by deep scarifications with the knife, and have often been quickly removed by the surgeon, as a safe and rapid method of taking the obstruction to the health and comfort of the patient out of way.

The dentist often finds acute pains of the teeth and their tendency to decay, consequent on the relaxed and unhealthy condition of the throat, which, if cured by an application to the part, may be considered closely connected with conservative dentistry. Many cases come under the dentist's observation in general and dispensary practice, that may be considered suitable for proving that an active stimulant may, amongst the other remedies, be applied with successful results without excoriating the surface and not seriously infringing the rights of the medical practitioner, who might otherwise consider the dentist treating a patient that would probably come into the hands of the practical surgeon.

Impressed with the idea that a concentrated form of the tinctura capsici, cum opio et radix pyrethri, would stimulate and promoete secretions of a healthy tone, giving vigor to the part, I have applied it with a pencil brush with very successful results.

One case only I would specify: A lad, eight years of age, came to our dispensary, supposed to be suffering from his teeth, but having very enlarged tonsils nearly filling the throat. Otherwise, he was apparently healthy. The whole of his suffering was from the condition of the throat, and this the treatment clearly indicated. After six applications of the preparation, allowing a few days between each, he was entirely cured, and was so conscious of the benefit derived, that he quite desired, and was pleased to have, the hot application renewed. That the formula may be of use to the profession, I give it as prepared by myself, which may be open to any improvement desired; such as the essential product capsici, or, as I conceive best, the fruit of the plant itself.

℞	Baccæ Capsici	℥ ss
	Gummi Opii	ʒ ss
	Radicis Pyrethri	ʒ j
	Sp. Vini Rect	℥ v

Digest for a week and it will be fit for use and may be kept without filtering to increase its strength. In cases of small ulcers, it is advisable not to use the same brush over the parts, to prevent inoculating with matter that may be removed each time. A few drops of the tincture answers the purpose, and is more effective if painted over the parts than applied as a gargle; the brushes can be prepared for further use by immersing them in a slight solution of carbolic acid and water, the disinfecting quality of which is well known to the profession generally. I need hardly say gargle with cold water after the application.—*From British Review of Dental Surgery.*

DENTAL ASSOCIATION OF MARYLAND AND DISTRICT OF COLUMBIA.

The Annual Meeting of the Dental Association of Maryland and District of Columbia, will be held in Baltimore City, commencing Tuesday, September 2d, 1879, at 11 A. M.

Officers.—President, J. Curtiss Smithe, District of Columbia. Vice-President, M. W. Foster, Maryland. Recording Secretary, H. M. Schooley, District of Columbia. Reporting Secretary, R. B. Winder, Maryland. Treasurer, H. B. Noble, District of Columbia.

Executive Committee.—R. B. Winder, Maryland; B. F. Coy, Maryland; H. C. Thompson, District of Columbia.

Members of the Association can secure accommodations at the Carrollton Hotel for $2,00 per day.

AMERICAN ACADEMY OF DENTAL SCIENCE.

The twelfth Annual Meeting of the American Academy of Dental Science will be held in Boston, on the last Wednesday in October, 1879, at 10 o'clock, A. M.

The annual address will be delivered by Dr. C. A. Marvin, of Brooklyn, N. Y.

E. N. Harris, *Cor. Sec.*

Nasal Polypus Treated by Injection of Carbolic Acid.—Dr. J. A. Henning reports a case of nasal polypus, in which he injected twenty drops of a mixture of carbolic acid, one part, and glycerine, four parts. In a month every trace of the polypus had disappeared.—*Medical Brief.*

JOHNSTONS'

Dental Miscellany.

VOL. VI.——*September, 1879.*——No. 69.

CHEMICAL REACTIONS IN BLEACHING TEETH.

BY W. S. ELLIOTT, M.D., D.D.S., GOSHEN, N. Y.

GENTLEMEN OF THE PROFESSION:—I desire to address myself directly to the subject in hand, and will spare you unnecessary preliminaries.

All of you have had abundant experience in the restoration of discolored teeth, and know the methods that are in vogue for the accomplishment of this end. You are aware that very much of the foreign matter contained within the tooth walls can be removed mechanically and that what little is left may be oft-times compromised by the introduction of white or light-reflecting fillings. These methods I do not propose to pass in review. My object is, more especially, to study the nature of the reactions which take place when chemical agents are employed that we may in this respect more thoroughly comprehend the processes which obtain in the production of the required results.

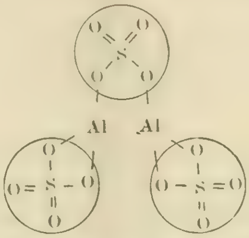
Chlorine is the long recognized agent for bleaching, and various methods have been resorted to to employ this element in the restoration of the teeth to a normal life-like shade, and of these methods one, of them all, seems to have taken the first place; that is, the introduction into the tooth cavity of alum and Labarraque's solution of chlorinated soda. This combination was first suggested, I believe, by Dr. Atkinson, and by him introduced to the proefssion.

Other than the fact that this plan of procedure is productive of good results, I have seen no explanation of the nature of the reactions which take place. This is made the subject of the present inquiry.

First, then, let us ask: What is the constitution of alum? I quote from the Dispensatory: "The officinal alum is a double salt consisting of ter-sulphate of alumina united with sulphate of potassa." "Besides the potassa-alum, which was formerly the only officinal variety of this salt, there are several others in which the potassa is replaced by some other base, as, for example, ammonia or soda."

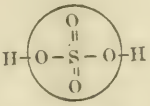
The ammonia alum is the one more commonly used in the arts, owing probably to its comparative cheapness. It is the alum of commerce and of the shops.

The ter-sulphate of alumina, of course, has for its base the metallic element aluminum: this, united with sulphuric acid, constitutes the molecule which is represented by the following diagram:



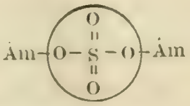
Ter-Sulphate of Alumina; $Al_2, 3SO_4 + 18H_2O$.

The acid thus:



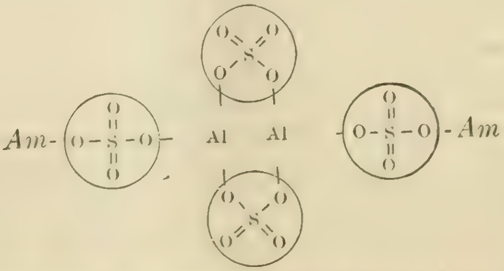
Sulphuric Acid; H_2SO_4

The remaining constituent of common alum is ammonia (NH_3) also united with sulphuric acid. The molecule admits of the following diagramatic representation:



Sulphate of Ammonia; $Am_2 SO_4 + 6H_2O$.

Therefore, in picturing the molecule of alum salt, we have:



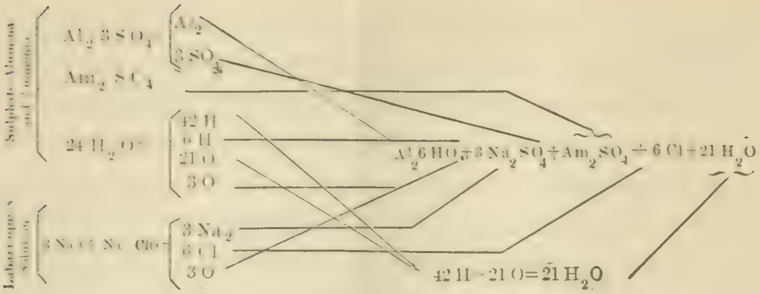
Sulphate of Alumina and Ammonia; $Al_2 3SO_4 + Am_2 SO_4 + 24H_2O$.

The water of crystallization has not been included in the pictures, to avoid confusion, but by a due calculation of the molecular weights there appears to be at least 24 H_2O involved in the synthesis—eighteen of these molecules are combined with the sulphate of alumina and six with the sulphate of ammonia.

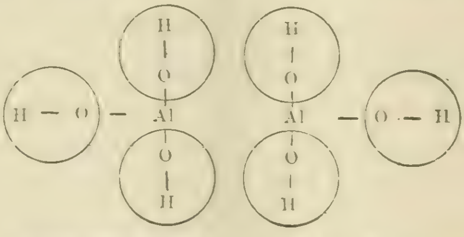
Labarraque's solution is an indefinite compound, and analyses are wanting before we can determine its true constitution. It is generally understood, however, to be a compound of chloride of sodium Na Cl; hypochlorite of soda: Cl O Na, and carbonate or bi-carbonate of soda; the latter being present only as a residuum in the process of manufacturing the chlorinated compounds from the original constituents—chlorinated lime and carb. soda.

It appears, from experiments, which we will endeavor to illustrate, that upon combining alum and the chlorine solution that this residual carb. soda is not decomposed; or, at least, we proceed upon this supposition since it does not appear to qualify in any manner the reactions between the other elements.

In this ℥ i prescription bottle I have a portion of the solution spoken of, and to it let me add more or less of the pulverized alum salt. It will be noticed that there is considerable effervescence, and as we study the reactions we will be convinced that this is the result of the evolution of the ammoniacal gas from the salt. Its extreme pungency you will have noticed as it pervades the room. Now, if we agitate the bottle, covering its mouth with the thumb, and then apply a flame you will see there is an explosion which, too, has extinguished the flame. We will repeat the experiment and find the same results obtained many times. The explanation is this: a large portion of the free chlorine is held in solution in the excess of water (the latter is capable of absorbing twice its volume of the gas), but when agitated a sensible portion is brought successively into contact with the ammonia and upon application of the higher temperature the Cl takes to itself the H of the compound and the resultant is hydro-chloric acid; the N being set free. As a proof of this reaction we may notice that the disagreeable pungency of the ammonia is destroyed as well as that of the chlorine. A more comprehensive showing of the general reaction is attempted in the following diagram:

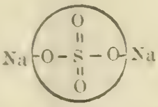


It will be observed, first, that the hydrate of alumina is precipitated :



Hydrate of Alumina; $Al_2 6 HO$.

and is thus canceled from the equation. Next, by the union of three molecules or six atoms each of Na, from the hypochlorite of soda and the chloride of sodium, contained in the solution, with $3 SO_4$, we have the formation of sulphate of soda :



Sulphate of Soda; Na_2SO_4 (representing one molecule only.)

and also in separation a corresponding mass of sulphate of ammonia, which, in the first instance was an integral part of the alum, but which is now released, unchanged, from its bonds with the other constituents. As a final resultant, there appears six atoms of free Cl and twenty-one molecules of water.

I desire here, to direct your attention to the officinal alum : the one variety having potassa for its base. You have seen the behavior of the ammoniacal salt. Now, into this test-tube I pour a quantity of the chlorinated solution and to it add some of this chemically pure alum. In this instance there is no effervescence ; you will perceive, however, evidence of reaction going on, but which is soon quieted by a completion of the interchange of elements. I place the tube to the nostrils and experience no irritation of the olfactory and but little pungency, which may arise from the liberated Cl. I will agitate the contents of the tube and then apply the flame as before: there is no explosion, because there is no H to combine with the Cl. The general reaction is the same, and the final result the same, except that now sulphate of potassa is released instead of sulphate of ammonia.

You will, from this exposition, learn of the very desirable properties possessed by the potassa-alum and the advantage gained in its use, and you will not commit the error in your practice of employing the commercial article.

The philosophy of bleaching is involved in the electrolysis evidenced between the agent used and the staining matter of the tooth which it is intended to modify. Cl is negative in its chemical relations and has strong affinity for the positive element H. It, therefore, decomposes water and other hydrates.

To explain the reactions between the evolved Cl and the discoloring substance, it would be necessary to know the chemical nature of the latter in each individual instance; but this may be impossible since these substances are so various and adventitious.

We can make explanation only upon general principles, but may be guided by the fact that Cl is the principle factor in the premises. Dry Cl does not bleach; the presence of water is necessary to accomplish the results. It would appear then that the water is decomposed—the H joining with Cl, and the O set free to combine with such other matter as it may have an affinity for. The latter element in its nascent condition is powerful to effect oxidation, hence the change of constitution of those compounds to which our efforts are directed. It is probable that the blood debris—haematine, &c.,—is in this way so modified that it becomes capable of dispersion by the ordinary methods of syringing, &c.

"THE DENTAL SPY GLASS" AND EYE WITNESS.

By Dr. W. H. Robinson, D. D. S., *Suisun, Cal.*

> "O wad some power the giftie gie us
> To see oursel's as ithers see us."

That is what we said, on the arrival of the August *Cosmos*, as we took a peep through Dr. Flagg's wonderful "Dental Spy Glass," and also tried to grasp ponderous revelations given to us in the same number by "Eye Witnesses." We read these articles eagerly, for they excited us. We read them carefully, for they amazed us; again, and they dumfounded us: again, and we doubted our sanity; again, and were confident the writers were—no, not insane—but that they believed the profession was. But, pshaw, certainly Drs. Davis and Flagg were not in earnest when they wrote such burlesques on truth. They know what good-natured credulous fellows we country dentists are. They know how often the reports of some of the big guns of the cities have gulled us, and that the rank and file of the profession believe too much and criticise too little. Here we beg the reader to refer to the August number of *Cosmos*, and take a peep at Dr. Flagg's "spy glass." Ain't it a funny thing? And didn't Dr. Davis see Dr. Flagg do some funny things? Well, when that spy-glass came, we put our peeper reverently to it and took a peep, and O, what funny things we saw! We saw different persons seeing differently. And, stranger still, we saw the same persons seeing the same things differently and indifferently. Another peep, and behold nearly the whole profession were peeping and grinning, and such an incredulous crowd of criticising skeptics, peeping and grinning at the blameless, earnest, inspired modest men who were telling them to look at the wonderful things they were doing—the wonderful possibilities of the expounders of the new departure. Those peepers were a very naughty hard-hearted crowd; instead of bowing down to and believing that "blameless, earnest, inspired modest man of an investigating turn of mind," "far out ahead on the bowsprit" they just peeped and grinned as he told them to bow reverently and believe implicitly in the sublime absurdities told "ex-cathedra" by the modest personification on the bowsprit. No matter what ten thousand common dentists say about leakage being bad around plugs. "I tell you leakage, as mere leakage around fillings, is not always bad. It may be bad, beyond doubt is fatally bad around the fillings of common dentists, but around some of the fillings of the sublime capabilities of the new departure it is good." "I, the modest man on the bowsprit, tell the thousands of dentists who have used amalgam and gutta-percha during all their lives, that in common practice among common dentists they may have some slight objections, but use them because I tell you: and amalgam and gutta-percha are sublime capabilities that save every tooth, no matter how bad. Even if frail, loose, diseased, the sublime capabilities of the new departure will save them! Save all of them forever. If you don't believe it ask my eye witness, Dr. Davis, in August *Cosmos*, and he will tell you as he did the New England Dental Convention, the wonderful things I do, and the boundless modesty and capabilities of the new departure man on the bowsprit," "True, says Dr. Davis, I did see wonders." And in truth he did, if he saw *what he tells us* he did in Dr. Flagg's office. Can these things be true? Are they true? If so, what bungling, conscienceless butchers we common dentists are. How different the sublime contemplation as portrayed by Dr. Davis. (I use his own words carefully):

"Nothing Dr. Flagg wishes done is any trouble, not even operations on the mouth, which he makes a pleasure." (O, that that were true of other dentists.) All his patients, nearly all, come back to him year after year from Maine to California. "He makes it a *real pleasure to sit* in his chair and have teeth fixed up." "He never hurts people, old or young. They ALL come with a glad smile to his chair—even the little children." (Ain't that nice?) "Little girls, little boys, middle aged of both sexes, and old ladies and gentlemen received at his hand dressings and operations with a *pleased delight.*" (Wasn't that splendid?) "None of them would even pretend to be hurt; not even when he burred about with White's engine into dentine and decay of tooth after tooth." (How sublime! they don't serve us common fellows that way.) "Not even for five dollars would one of them say he was hurt" (Lots of our patients lie like blazes about us for nothing.) "Not one of them even lost a tooth since they came here. Half teeth, loose teeth, loose roots, with amalgam crowns, all comfortable, doing duty and giving *immense satisfaction.*" Hurrah for the "boundless capabilities of somebody to tell nice stories—I mean facts"—for he says, "now, when you come to take in all these facts." Ah, there is the rub—they are too good, too grand, too boundless. We of common capabilities, have not capabilities enough to *take in* as facts such boundless assertions. Forgive us. We don't wan't to be skeptical, but—but O, are such boundless possibilities possible?"

Seriously, what do the men who write such things mean? Do they themselves believe them? Do they think others can believe them? I am one of those unfortunate dental butchers that do hurt. Can't work without hurting; can't save all diseased teeth and roots; can't make the slight unpleasantries of burring sensitive dentine, extirpating nerves or capping them when exposed—can't make putting the dam on such teeth, or tapping in pulpitis or periostitis "real pleasure." How we common mortals wish we could. We try; but we hurt sensitive children, nervous women and even strong men. How we sigh and yearn and long for that divine mystic touch that transforms all these operations into "real pleasure." Selah! But peep through Dr. F.'s spy glass at the man on the bowsprit and you see all these things, or you are a hardened sinner, too blind to see the "boundless capabilities of the new departure" spy glass man "at the little hole."

A few thousand common dentists with common peepers are peeping, and lo! they see one new departure man, a few years ago, using *only* gold because it was *best*. Now he uses no gold because it is *worst*. Many honest men thought him mistaken then ; they think so now.

He is a noble, earnest, honest man, but may now be making mistakes and learning much, as he always has been doing. They see another of them, an earnest accurate experimenter, using every material mode and manner of operating, proving that some are bad, some good, and holding that many materials and modes are good, but no one *best*. And then a Flagg, an earnest, noble, true one, waving triumphantly on a bowsprit, emblazoned "Eureka." And they look and see him using just the same materials and modes of operation that thousands in the profession have been using all their dental life. The only difference is he omits gold, but how this can make his other modes and materials produce such wonderful results is a mystery, 'till you take a peep through the new departure spy glass and see somebody modestly taking a peep at his own boundless new "departure capabilities," through his own dental spy glass. And what wonders that look reveals. Some prodigies with a Flagg "peeping at the little hole" ; all so earnest, so blameless, so much like Columbus, Gallileo and Howard. What a wonderful man, and what a wonderful spy glass. How nicely adjusted. The whole profession and all its modes and materials at the little end and Dr. Flagg with some of these materials at the big end, saying, "all look and bow the knee to my boundless new departure capabilities. Many of us have taken a good peep One sees an angel of light dispensing a new gospel, an etherial deified conception, making physiological and pathological laws obey his fiat, so that under his etherial touch nerves cease their functions, lesions in sensitive tissue give no pain, and agony is transformed into real pleasure." Others take a peep, and "*Presto*," they see a mortal man bound by nature's laws, stuffing rotten teeth with an impure alloy and hurting while he does it.

Now, my dear new departure friends, we know you are honest, earnest, scientific and virtuous, and that amalgam, gutta-percha, etc., are good materials. Many of us have used them for twenty years and have tried and know their virtues, so when you tell us about yourselves, your modes and materials,—don't soar so high,—don't make your alloys virgin pearls and yourselves Emmanuels,—don't get too far out on the bowsprit or possibly there may be a splash.

AMERICAN NERVOUSNESS: ITS PHILOSOPHY AND TREATMENT.

BR GEORGE M. BEARD, M. D., NEW YORK.

An Address delivered before the Baltimore Medical and Surgical Society, Feb. 12,1879.

Gentlemen,—If our fathers in medicine of the last century could be brought from their graves to this room this evening, and be told of the subject that has brought us together, the first question that they would ask would be: "What is meant by the term nervousness?" They would say, and very truly, that the Greeks had no word for nervousness as we now understand that term; and that even down to the eighteenth century, nervousness was supposed to mean irritability of temper, disposition to anger, excitability—a mental quality, and not a physical disease. In reply, we should be obliged to say that in the nineteenth century, nervousness meant nervelessness, nervous exhaustion, abnormal susceptibility of the nervous system to internal or external irritants.

American nervousness, during the past half century, has expressed itself by a large variety of symptoms, a number of which are so frequent, so positive in their character, and so important, that they have given names to disease, and are known as such. Among these symptoms and expressions of modern nervousness are neuralgia, sick headache, nervous dyspepsia, hay fever, and, above all, *neurasthenia*, or nervous exhaustion in all its various forms. These conditions, with others that might be mentioned, constitute a family of nervous diseases that have developed chiefly during the last half century—at least, during the present nineteenth century—and are most abundant, and most severe and most varied in their manifestations in the northern portion of the United States, although they are found in and are now extending to England and the Continent of Europe.

The rise of this family of functional nervous diseases brings a new era into medicine and sociology, for it has no precedent in the history of mankind. The ancients had no nervous disease, or almost none, save a few cases of insanity and epilepsy here and there, and our moderns knew little or nothing about them until the present century.

The scientific proofs of this unprecedented nervousness of the Americans during this generation are very numerous. I will mention but a few.

First of all, there is the *increased sensitiveness to cold and heat*, which is observed among all our brain-working classes. Our fathers were content with a temperature of 60° F. We must have, to be comfortable, a temperature of at least 70°; and there are many families who heep their rooms at even a much higher temperature. In other words we are 10° more sensitive to cold than were our fathers. The heat of our Summers is no greater than it was a century ago, but the cases of sunstroke and heat prostration are widely out of proportion to the increase in our population.

Note also our sensitiveness to stimulants and narcotics, as alcohol and tobacco, and even tea and coffee. Not only our fathers, but our mothers, could drink freely of wines and stronger liquors, and even smoke as much as they wished, without developing any of the nervousness of our time. At the present time, a very considerable proportion of the population of this country are unable to smoke, or chew, or drink even mild wine, or tea or coffee—especially the latter—without making themselves perceptiby worse thereby. I find that a very considerable number of my nervous patients have been compelled, before I see them, to give up their coffee and tobacco. All this is modern and preeminently American. Likewise the idiosyncrasies of patients in regard to the action of medicines and the effects of drugs and various external irritants, have, during the last half century, multiplied in variety and phase, and greatly augmented in number. There are thousands who cannot bear opium—who are kept awake instead of being put to sleep by it. The ordinary dose for an adult is sufficient to deprive them of a night's repose. One very eminent physician finds that even chocolate, one of the mildest beverages, is a poison to him; and another experienced physician who consulted me one time in regard to himself, could not, he said, bear anything that I prescribed. I spoke of iron; he said iron, even in small doses, made his head ache; and when I tried it, even with other medicines, it produced that effect. I suggested quinine; he said quinine made him crazy. I tried a zinc combination; it disturbed his stomach. And yet this man, so variously sensitive, was actively engaged in one of our most laborious professions.

One of the very best signs of our civilization is found in the *premature decay of our teeth.* Special explanations, without number, have been offered for this long-observed phenomenon—such as the use of sweets, the use of acids, neglect of cleanliness, and the use of food that requires little mastication. But they who urge these special facts to account for the decay of teeth of our civilization would, by proper inquiry, learn that the savages and negroes, and semi-barbarians everywhere, in many cases use sweets far more than we, and never clean their mouths, and never suffer, except in old age, from cavities in the teeth. The cause of the decay of teeth is subjective far more than objective—in the constitution of the modern civilized man. Similarly, also, with regard to irregularities of the teeth, which, as is now known, are dependent on bad nutrition of the jaws.

Delicacy of digestion is one of the best known and first observed effects of civilization upon the nervous system. The history of the *rise and fall of pork as a food* is itself most instructive on this point. Pork, like the Indian, flees before civilization. In all the great cities of the East, among the brain-working classes of our large cities everywhere, pork in all its varieties and preparations has taken a subordinate place among the meats upon our tables, for the reason that the stomach of the brain-worker cannot digest it. Three times a day, and every day in the year almost, pork in some form was the only dependence of our fathers in the last generation, who could eat it freely without ever asking themselves whether it was easy or hard to be digested. This dethronement of pork has had, and is still having, a disastrous effect upon the American people ; for, as yet, no article of food with a sufficient amount of fat has been generally substituted ; and fat in our dietaries is one of the most imperative hygienic needs in our time, and which has become to be felt, both instinctively and rationally, and which, on all hands, we are trying to meet, by the use of cream, cod-liver oil, eggs, fish and the fats of fresh meat.

The *eyes*, also, are good barometers of our nervous civilization. The increase of asthenopia and shortsightedness, and, in general, of the functional disorders of the eye, are demonstrated facts and are most instructive. The great skill and great number of our oculists are constant proof and suggestions of the nervousness of our age.

In this sensitiveness of organization, the *reproductive system* ever shares. One of the many evils of our time, we are told, is, that the habit of self-abuse is on the increase, and that men are more indulgent than formerly. Hence the increase of nervous diseases that are connected with the genital functions ; and hence the terrific results that sometimes follow early begun and long-continued masturbation. But so far as can be learned from all sources of information on these difficult themes, it would appear that among savages and the semi-civilized, sexual abuse, both in a natural and unnatural way, is carried to a far higher digree, on the average, than among the civilized ; we cannot, indeed, bear these abuses as our fathers could. The observation of Bulwer, that it requires a strong constitution to be dissipated, is a just and sound one. The modern young man is not strong enough to abuse himself as perhaps he would be willing to do, or as his ancestor did. Both natural and unnatural methods of sexual indulgence react with fearful and almost immediate power on the nervous system, with symptoms which, through the labors of charlatans, have become familiar as the songs of infancy. In marital intercourse, we are compelled, as a rule, to exercise a caution and a moderation of which our ancestors knew nothing.

The world inqnires why diseases of women increase, and many special causes are assigned ; but the one great cause, to which all others are subordinate, is civilization.

The question often agitated is, Whether diseases have changed their type in modern times ? This is a question which should not be discussed ; to raise it, is to answer it. There is no question but that diseases have changed their type in the last half century. The only question is, What are the degrees of the change, and what are the causes which produce these results ?

It is demonstrable that nervous diseases have increased in recent periods ; and that, with this increase of nervous symptoms, there has been also an increase in the asthenic forms of disease, and a decrease in the sthenic forms ; and, correspondingly, that there has been a change in the methods of treatment of diseases ; that neurasthenia—nervous susceptibility—has affected all, or nearly all, diseases, so that nearly all illnesses occurring among the better class of people—the brain-workers—require a different kind of treatment from that which our fathers employed for the same diseases.

The four ways by which we determine these facts are—*first*, by studying the literature of medicine of the past centuries ; *secondly*, by conversation with very old and experienced practitioners—men between the ages of seventy and and ninety—who link the past with the present generation, and remember their own personal experience and the practice of medicine as it was fifty years ago ; *thirdly*, from our own individual experience and observation ; *fourthly*, by studying the habits and diseases of savages and barbarians of all climes and ages, and of the lower orders about us.

Statistics on this subject are of very little value, for reasons that will be clear to those who are used to statistics and who know how they can be handled. Longevity has increased almost *pari passu* with this increase of nervousness and change in type of disease, and this has been a stone of stumbling and rock of offense to those who have discussed this subject. Both facts are true ; longevity has increased among the brain-working classes, and nervousness has also increased. These two apparently opposite facts are harmonized by a third factor which those who have studied this subject failed to reach—namely, nervousness is not only consistent with longevity, but actually favors it, by preserving the system from attacks of accute inflammatory disease. We do not bear blood-letting now as our fathers did, for the same reasons that we do not bear alcohol, tobacco, coffee, opium, physical pain and sexual indulgence as they could. The change in the treatment of disease is a necessary result of the change in the modern constitution. The old-fashioned constitution yet survives in numbers of people ; and in such cases, the old treatment is oftentimes better than the modern treatment.

The diseases of savages can be learned from books of travel and from conversations with travelers. Many of these books, it is true, are of a non-expert character, so far as the diseases of the savage tribes are concerned, but some of them are written by physicians and scientific men of various degrees of eminence, whose observations, on a large scale, compared together, enable us to arrive at the approximate truth. In the study of this subject, I have compared a very large number of books of travel, and I have arrived at this fact, in regard to which there can be no doubt whatever, namely, that nervous disease scarcely exists among savages or barbarians, or semi-barbarians, or partially civilized people. Likewise, in the lower orders in our great cities, and among the peasantry in the rural districts, muscle-workers, as distinguished from brain-workers—those who represent the habits and mode of life and diseases of our ancestors of the last century—nervous diseases, except those of an inflammatory or syphilitic character, are about as rare as they were among all classes during the last century. These people frequently need more violent and severe purging, more blood-letting more frequent blistering than the higher orders would endure. If we would compare the nervous diseases of our time with those of the past, we have only to look about us among those classes of people whose temperaments take us back a half or three-quarters of a century ; in these classes such diseases as neurasthenia, heavy fever, sick headache are very rare indeed ; so that it is very difficult for a hospital for nervous diseases to succeed in getting a sufficient number of patients of this character. On the other hand, hospitals for inflammatory and febrile diseases are enormously patronized among them. It is partly for this reason that the literature for nervous functional diseases is so poor and unsatisfactory. Our medical books and lectures are made up far too often of hospital, charity and dispensary practice.

What, now, are the causes of this increase of nervousness in America during the past half century? There is no single cause; it is a combination of influences that have brought about this unparalleled condition of the nervous system. The primary cause is unquestionably civilization, especially with its recent accompaniments, as the telegraph, railway and the periodical press. These three institutions have drawn, and continue to draw each year, most severely on the nerves of all classes; but particularly upon those who are favored with education. The introduction and popularization of the railway and the telegraph, and the development of the periodical press, belong, it will be observed, to the nineteenth century; and they have intensified in ten thousand ways, cerebral activity and worry. This factor of civilization applies to all the great countries—Europe as well as America.

But after we have given this cause every credit to which it is entitled, we are yet face to face with this question, Why are the Americans more nervous than any other people on this planet? The answer to this question, which has occupied the thoughts of philosophical observers for the past quarter of a century, is to be found mainly in these factors: First, the dryness of our atmosphere; and secondly, the extremes of heat and cold. In these two respects, America differs from any other civilized country.

Dryness of atmosphere produces nervousness in two ways. First, by taking up and absorbing the moisture of the body, thus causing us to literally dry up. When the atmosphere is moist, perspiration accumulates upon the surface of the body, because the air cannot take it up. Hence, in our dull dog-days, we are frequently annoyed by excessive perspiration. In a dry air, which is hungry for moisture, the fluids of the body, as they become vaporized, are rapidly conducted away; the body is thus wasted of its fluids. Dry air also prevents the electricity of the body from being conducted away, and thus we become excessively charged with that force, and excessively stimulated by its confinement in the body. Moisture conducts electricity; and the moistened air insensibly carries away the electricity of the body, so that it is impossible for the body to become so excessively charged and stimulated. The evidences of this dryness of our atmosphere are numerous and striking. Clothes on the line dry more rapidly than in Europe. The specimens of the naturalists do not so quickly mould; the hair is stiffer and dryer than that of our European contemporaries and requres more pomade and oil. This peculiarity of our climate is observed from the Atlantic to California; and the Rocky Mountain region is far more under the influence of this dryness of atmosphere than even the East. In the region of northern Dakotah and Montana, as all authorities agree, buffalo and meats of other kind dry more speedily when exposed to the air, and keep much longer than in other countries. The electrical state of what I have spoken, and the charged condition of the body, is also very commonly observed in that section of the country. A comb drawn through the hair produces crackling, and sparks come from the clothing while dressing and undressing in a dark room; and, in some cases on the mountain sides, actual lightning is seen coming out of the rocks or soil. In this section of the country, also, where the air is so extremely dry, nervous people frequently become more nervous; they are troubled with insomnia and neuralgia, and various forms of debility. In the valley of Sacramento, as is well known, the north wind coming down from the mountains is exceedingly dry, somewhat like the simooms of the East; so that the whole earth—the metals upon it—become surcharged by the electricity which cannot escape; and the fruit on the side from which the wind is blown, becomes parched and shriveled, and the grass everywhere has its vitality impaired, while men and animals of all kinds become fretful and irritable. This extreme condition illustrates the process which is going on, though in a less degree, all over the northern and eastern portion of the United States. The violent extremes of heat and cold—the bitterness of our winters contrasted with the heat of our summers—excite nervousness by over-stimulation. The application of latent heat and cold, as ice in hot water, is one of the most powerful means of local stimulation that we have in medicine; to this treatment nearly all of the American people in the northern and eastern sections are constantly subjected.

Secondly, extreme heat and cold produce nervousness by compelling us to live in-doors in unnaturally dry and over-heated atmospheres, and making it impossible, either in summer or winter, to partake of those active out-door exercises and amusements in which our English friends indulge at nearly all seasons of the year. The English climate, as contrasted with the American, is more equable. Its moisture, and even its unpleasantness and disadvantageousness is favorable to the nervous system: likewise, the climate of our Southern States is more moist and more uniform than of the North and West: and, according to investigations that are variously made, nervous diseases of all kinds, or nearly all kinds, pretty steadily diminish in frequency as we go South.

The institutions of civilization common to all enlightened countries, such as schools, newspapers, excitement of elections, reforms and revivals, are themselves the results of climate and race, and are also to be included among causes of nervousness. Civilization is burdened with information that it must acquire; every year history raises up new facts, that the school-boy of the future must commit and recite. If we would know why the Americans are so nervous, we should contrast the Greek boy with the New York boy in their manner of training in the schools, in their play, and in the whole order of their lives. The Greek boy's life was a poem, a constant holiday, a perpetual picnic. Of study, toil or work, to which the New York boy is early trained, he knew nothing. Work is really a modern institution. All culture, history, science, literature and languages that have appeared in the world during the past two thousand years, the lad of to-day must try to acquaint himself with. Of all these, the Athenians knew nothing—could not even predict. When we contrast the life of an American child, from its early school-days until the hour it leaves the university or seminary, the many and tiresome hours of study, the endless committing and repeating and forgetting, the confinement in constrained positions, the over-heated and over-dried atmosphere, the newspapers and novels that he is and must be prepared to converse about and criticise, the sermons and lectures which he is compelled to listen to and analyze, the strife and struggle for bread and competence against inordinate competition, the worry and concentration of work made both possible and necessary by the railway, mail service and the telegraph; in view of these facts, we wonder not that the Americans are so nervous, but rather wonder at the power of adaptation of the human frame for unfavorable environment. The education of the Athenian boy consisted in plays and games and songs, and repetitions of poems, and physical feats in the open air. His life was a long vacation, in which, as a rule, he rarely toiled as hard as the American lad in the intervals of his studies.

The rapidity of our modern and American life has a tendency to concentrate an enormous amount of activity in a brief space of time. The intensity, the fierceness and violence of our toil, are the results of our climate; and in their turn, they deepen and intensify our nervous sensibility. In the study of this subject, the disposition has been to look exclusively at some one of these secondary elements—our haste in motion or our haste in eating, and to consider some one such factor as the sole cause of American nervousness. Indeed, I may say, that up to the present time, this has been the popular mode of interpreting the unparallelled phenomena connected with American nervousness. Effects have, indeed, been confounded with causes—a process of reasoning which, it may be added, vitiates and destroys nearly all human philosophy, and nearly on all themes, but, especially, on questions of sociology, such as the effects of stimulants and narcotics, or diet, or social customs. American nervousness is a complex resultant of a number of factors—not a single result of one. In order to understand it, grasp it, to master its philosophy, we must be able to see these factors all at once by themselves, and in their relations to each other.

There is one disease, the type and center of a large family of functional diseases, to which I have applied the term *neurasthenia.* If we understand the philosophy of this disease and its treatment, there will be little difficulty in understanding the philosophy and treatment of very many of the family of functional nervous diseases to which it belongs. Neurasthenia is pre-eminently an American disease. It might, indeed, be properly called *Neurasthenia Americana.* Although it is found in England and on the Continent, it was here first systematically described, and here it exists in greater variety and frequency than in all other countries combined. The generic term neurasthenia—nervous exhaustion—I subdivide into two: cerebrasthenia—exhaustion of the brain; myelasthenia—exhaustion of the spinal cord.

Among the symptoms that I have referred to *cerebrasthenia* (brain exhaustion) are tenderness of the scalp, cerebral irritation, tenderness and whiteness of the teeth and gums, flushing of the face, special idiosyncrasies in regard to food and external irritants, morbid desire for stimulants and narcotics, insomnia in its varied manifestations, dilated pupils, melancholia or mental depression, deficient memory, or power of intellectual control, different forms of morbid fear, as astrophobia (fear of lightning), agoraphobia (fear of places), anthropophobia (fear of man and society), and its opposite, monophobia (fear of solitude), sick headache, and various forms of headache, and pains in the head, disturbances of the nerves, of special sense, as *tinnitus aurium*, and specks before the eyes, subjective tastes and odors, dryness of the skin, eyes, throat and mucous membranes generally. Among the leading symptoms of myelasthenia (exhaustion of the spinal cord), are spinal irritation with general hyperæsthesia, irritation of the tip of the spine, coccogynia, irritable breast, irritable ovaries, irritable womb, vague pains throughout the body, flying neuralgias, tremulous and variable pulse, sometimes very high and sometimes very low, with occasional attacks of palpitations, sudden giving away of special or general functions, shooting pains in the limbs similar to those of ataxy, sudden starting on dropping to sleep, abnormalities of the secretions and dryness of the skin, or the opposite, excessive perspiration, local and general, as sweating of the hands and feet, gaping, yawning, stretching, neurasthenic forms of chilliness, creeping sensations in the spine, ticklishness, local spasms of muscles—the so-called fibrillary contractions.

This differentiation of the symptoms of cerebrasthenia and myelasthenia is not absolute; a number of these symptoms would seem to be common to both forms, and some, very likely, are due to disorders of the sympathetic in the cerebral or spinal region, or both. In some patients, we have almost pure myelasthenia; in others, almost pure cerebrasthenia; in others, a combination, or, as is very frequently the case, an alternation of the two. Some of these symptoms, when they occur, themselves act as causes for other symptoms; for the sensitive nervous human body is like certain mountainous regions—full of echoes and reverberations. An irritation at one point may be transferred to any other point, following along the paths of least resistance, and making itself felt in those parts that are least able to resist molecular disturbances. Thus, for example, seminal emissions and spermatorrhœa, when they arise through abuse or through spinal cord disease, almost uniformly react on the brain—robbing the sufferer of courage and manliness, exciting various phases of morbid fear, of which I have spoken, with aversion of the eyes and countenance. The reaction is also on the vocal apparatus, causing a neurasthenic voice; on the eyes bringing on neurasthenic asthenopia, against which glasses and gymnastics are powerless; on the stomach, inducing irritative dyspepsia; on the sweat centers, producing morbid sweating of the hands—palmar hyperdrosis; on the face and hands, and ears especially, producing morbid flushing and redness. Likewise, also, nervous dyspepsia, whether excited directly by abuse of the stomach or by over-use of the brain, reacts on the brain itself and on the whole organism; so that, an attack of indigestion is sometimes indicated by pains in the limbs, or by nervousness of a vague and indistinct character in different parts of the body.—*Va. Med. Monthly.*

(To be Continued.)

19TH ANNUAL SESSION

OF THE

AMERICAN DENTAL ASSOCIATION,

HELD AT NIAGARA FALLS, AUG. 5TH, 6TH, 7TH AND 8TH, 1879.

The Association was called to order at 11 o'clock A. M., Tuesday, August 5, by its President, Dr. H. J. McKELLOPS, of St. Louis, and after a session devoted to routine business, adjourned to 7½ P. M., when it was again called to business by Dr. McKELLOPS.

REPORT OF SECTIONS.

SECTION I.

Artificial Dentistry, Metallurgy and Chemistry.

Dr. R. FINLEY HUNT, Chairman.

Section I, having charge of *Artificial Dentistry, Metallurgy and Chemistry*, would respectfully report that circumstances beyond the control of its members have prevented their doing more at this time than simply reporting progress.

Dr. TAFT: I do hope that there will be something said upon this subject. Criticism has usually been made that the subject of Mechanical Dentistry was passed by; that time and opportunity were not afforded physicians who are interested in this branch, to consider it. The opportunity is now afforded, and I do hope they will improve it, and give us what can be said on Mechanical Dentistry, Metallurgy and Chemistry.

Dr. C. S. STOCKTON: I had not designed to say anything upon this subject, Dr. Hunt being the chairman of our section; but I do not feel just like letting the subject pass. I don't know that anything new has been presented during the past year regarding Mechanical Dentistry. The same materials are used. The same manner of constructing artificial dentures is still carried on. I think there is nothing so good for partial sets of teeth as gold. I think there is nothing so good for whole sets of teeth, especially for lower sets, as continuous gum, and gold for upper sets. I use gold, and fasten the teeth on with rubber or celluloid, because you can probably have a cleaner arrangement in that way than when you solder the teeth. The strongest and best piece of work that can be made, in my judgment, is a good gold plate with single teeth, soldered on with strong backings, using vulcanized rubber in all the interstices and making a clean job in that way. There is a way of making the lower plate stick better by making a groove in the bottom of the plate. I have tried it but once, and not long enough to say whether it would give very great satisfaction or not. I will be very glad when rubber is done away with ; and when it is, dentists will be better qualified to practice dentistry, just as they were years ago. The education of dentists—such education as they should have—is not now taught by preceptors, and I don't think it is by colleges. I draw that conclusion from the fact that I see no sets of teeth that are ground up and fitted to the plate as they should be. On a partial denture the gold should go over the gum, and the teeth should be so accurately fitted to it that the secretions of the mouth could scarcely get between the teeth and the plate ; but you don't see that anywhere nowadays. Most of those who have come into the profession since rubber was introduced, don't know how to construct such a piece of work. I wish that rubber had never come into dentistry ! My practice generally is, when I take out the tooth, to immediately take the impression, and put in a set of teeth on celluloid. Let the patient wear them as long as can be done comfortably, and then, if necessary, make them over, and when the time comes for a permanent set, I tell my patients it is cheaper for them both in health and in the pocket to have a good set of teeth made on gold or platina than anything that can be put in the mouth. And that brings me to the point I made awhile ago, that those coming into the profession could be better educated. I don't want dentistry divided, I want it in its integrity. I don't want "partial dentists ;" dentists who can extract your teeth or fill them very nicely, but when it comes to fitting in a new set they cannot do it. I want young men to know dentistry from the beginning. To know how to take a gold coin and make a plate. How to take the materials of which teeth are composed, and know how to make teeth from them. Only a short time since I had a very difficult case indeed, and there was only one gentleman in the country I could find who could carve me a block for it. I could have done it myself, but two years ago my old furnace broke down and I have not had one since. But I claim that every dentist should know how to take the materials from the beginning and go on and make a perfect piece of work. Have your rolling mill ; I don't know how dentists get along without one. I am told there is scarcely a dentist in the country has a rolling-mill. I would not know how to get along a week without one.

These are thoughts I wish I could have put together more perfectly, but I did not feel like letting the subject go by without one word being said upon it.

Dr. Atkinson: My efforts in endeavoring to get this body divided into permanent sections were for the express purpose of dividing the labor so that the members could work in any section they desired, so as to elaborate reports in them that should be a guide to all who need help in the direction of work in the line of which the section had charge. I did not hope that we would start off in the new order with celerity, and with the same sort of vim that we had pursued in the old caucus method. This loose method of treating subjects before us we have proved to be nearly profitless in the past. I wish now to say a few words regarding the necessity of artificial teeth, and make reference to great regrets for the lack of knowledge on the part of those who extract teeth. Anæsthetics of all kinds are Satan's right hand means for mischief, and the gentlemen who use them are his lieutenants, that go forward to reckless work that pains every honest man in the profession. Mechanical Dentistry was started upon false principles—upon lack of knowledge of the anatomy of the jaws and of the teeth, and entire misconception of the functions of the roots of the teeth. No anatomist will extract healthy roots, whether they have crowns on them or not. The roots were put there by the architect of the human body for the purpose of distributing mascatory force—for the purposes of digestion. Who has set forth and preached that doctrine? Who has practised that in his life? We have so-called dentists in New York who ruthlessly destroy the peace and comfort of people by wicked work I have under treatment now, cases where the money had been taken, nitrous oxide administered, and teeth crowns crushed off, and the patients came to me to extract the roots. In the last case I refused to extract them on the ground I have hinted. We must take a new departure if we want to be scientific practitioners of dentistry. The sections are to be judges if they have anything fit to present to this body, and they do not need to ask this body for further time; they are independent, and if they have nothing further to report than progress they have nothing to do but present it, and we must accept it. If you are fit to practice dentistry you will see the relevancy of what I have said, and the imperative necessity of our crying out against this ruthless wickedness, this abominable practice that is going on through the land. I will name the case of a lady, who makes her living by the needle, calling upon an adminis trator of nitrous oxide to have a troublesome root extracted. There were fifteen teeth extracted—many that were sound—and I am informed that they are in possession of the young lady still, to show whether they are sound or not. And she paid sixteen dollars for the extraction of those teeth. She called upon a friend of mine to have them replaced upon an artificial base; and the gentleman, who is a Christian and an excellent dentist, gave her the work at cost; and she is now in a mutilated condition through the ignorance or wickedness of the person who gave the gas and extracted the teeth. The lady said she did not want the teeth extracted, and when she became conscious she remonstrated against their removal from her mouth, and was answered by saying "the best thing dentistry could do for her, even if the teeth were sound, was to take them out of her mouth and give her a good set of artificial teeth!!" That is what Cheap-John is doing for dentistry. But, oh dear! the dear people will have it so. The old book says, "My people love to have it so." *They don't love to have it so!* but ignorance has blinded them so they don't see anything but the way Cheap-John says; the way to get an unclean dollar out of their pocket, and an unclean piece of dentistry in their mouth. If we succeed in accomplishing the work that has been laid out in the sections of this society, we shall have reason to congratulate ourselves upon the fact that we have made life better and may enjoy life, and be a blessing in all our intercourse in life.

A word or two more respecting something that is in preparation. There is some experimenting going on with the hope of casting gold plates so as to be perfectly air and moisture tight, to the teeth for artificial dentures, and my impression is that for partial bases it will succeed very well, and I don't know but it will for entire plates. But I am not so anxious to teach people how to remedy imperfections in this as I am that we may do good by rule, and mischief by chance and exception, rather than go on as it is now going on in artificial dentistry, mischief by rule and good by exception.

Dr. C. J. Essig: I must express my regret that the section find themselves unable to make a report on this subject, and I find I agree with Drs. Stockton and Atkinson in their remarks. I agree with Dr. Stockton that the matter is an important one, and that every dentist should be a full dentist and understand thoroughly everything in his profession; and with Dr. Atkinson, that often teeth are extracted that might be saved, and artificial dentures needlessly employed.

A reason I feel the importance of this matter is that in my experience with students, it is not an uncommon thing for a man to introduce himself and ask what course he shall pursue in his studies, and then tell you that he intends to devote himself to the filling of teeth. In one case a gentleman told me he did not intend to devote himself at all to laboratory work; did not wish to make its acquaintance. I then asked him what he intended to do with these cases which he would be sure to meet with where the teeth were lost from other causes than that of decay? And he seemed to be quite puzzled; did not seem to think there was anything else essential in dentistry, except filling with gold to save them. There are causes, other than decay, which occasion the loss of teeth; and this fact must not be lost sight of. It is useless to talk about tabooing mechanical dentistry, until we are able to cope successfully with those other conditions. In regard to the matter of permitting roots to remain in the mouth, I would simply say that is something that cannot be done in all cases. It would add to the use and comfort of the patient, if such a firm foundation could be allowed to remain; the trouble is, however, that unless there is some elasticity in the surface upon which the plate bears, atmospheric adhesion is either rendered impossible or else greatly impaired.

In regard to casting plates, twelve years ago Dr. J. B. Bean, of Baltimore, demonstrated that it would be easier to cast a gold or silver plate than any other, owing to the great specific gravity of these metals. It would be very much easier to swedge a plate, and any skillful man that knows anything about that branch of his profession, could swedge a plate to fit just as perfectly as to cast it, and even more so. A plate which is cast must be the size of the plaster mold; now the plaster mold is always larger than the mouth. A set made to fit upon a plaster cast would be larger than the mouth. By way of illustrating: if a plate be made from a plaster cast, and then introduced into the mouth, it will be found in a few days to press unduly upon the palatine arch and not along the ridge of the mouth; now that is all wrong; in the first place, it should press harder upon the alveolar ridge, for absortion will go on at that point, and it is more yielding and the plate will soon adapt itself to the mouth. Some gradual change may always be looked for along the ridge.

Dr. T. C. STELLWAGEN: I am a little inclined to differ with Dr. Stockton. I must not let this opportunity pass without saying, that in the college that I have the honor of being connected with, every student before he graduates, is required to put up a case upon metal, and my colleague, Prof. Smith, is extremely cautious about the fitting of the teeth to the plate.

My object in taking the floor is to call the attention of the gentlemen present to a method of adapting plates to the metallic dies, which seems to be but little practiced, and, as far as I know, has been known to but few. It was first, as far as I am aware, adopted by my friend and student, Dr. W. H. Cryer, of Philadelphia, and described by him before the Odontographic Society of that city. He has been for several years making metallic plates in this way, and I think has obtained some of the most wonderfully successful adaptations of plates to the mouths that I have ever seen.

You all know, or at least all of us that have ever swedged a plate know, that sometimes the counter or leaden die is stretched or pressed out of shape, and the consequence is, that the zinc die beats out a little portion of the plate; stretches it at one point just sufficiently to make almost a bubble, in shape, in that plate; it has, by this stretching, become thinner and larger in that one spot. Dr. Cryer devised the plan of squeezing the plate between the two dies by means of a powerful screw. Some months after he had shown this method of shaping plates, I was called upon by a person who desired to sell to me a patent right to prepare plates in this way. I at once told him that the thing was by no means new to me, and I found that his claim for its use was antidated by Dr. Cryer's use of it. I have heard nothing more of the patent, and I presume he has withdrawn from the field, seeing he could not enforce the payment of any royalty. But I see that the very fact of it not being pushed by patentees, has made it known to but comparatively few practitioners. I would, therefore, recommend to you who are interested in this matter to give it a practical trial. I am not prepared, exactly, to explain the weight and size of the screw. I know that when first attempted it was with a screw arranged for celluloid work, but this broke several times, but was afterwards strengthened by heavier bolts and a longer lever, and is still used.

Dr. R. Finley Hunt: As the chairman of a committee is made in a great respect responsible for the work of that section, the chairman of this section feels forcibly the state of affairs which exists in our profession in regard to artificial dentistry, which has been so ably depicted to-night. I say, the chairman of this section, feeling forcibly this matter, found that he could not present a report to the session at this meeting that would be what it should be under the system of sections. He hopes to be able, by the assistance of his colleagues in the section, to present all the points of degredation of artificial dentistry to this association, and to point out some way to elevate it out of that depth into which it is sunk, and to place it on the plane it should occupy in our profession. With reference to the consideration of that subject alone, it would have required presentation here—a year's work of a well organized subsection, or even of a whole section. So with chemistry, which gives us so broad a field of work. So also with metallurgy about which we understand so little. I think that metallurgy should properly include chemistry. Metallurgy, however, being in our charge, would enable us to extend it into chemistry. I simply rise now to explain still further why we have not been able to make a report, on the ground that whatever is done by this association, and especially by sections, should be well done, and not merely glanced at superficially.

Dr. C. R. Butler : I have only a few words to offer upon this subject ; and that is upon the manner of swedging metal plates, which I think Dr. Stellwagen has referred to, by a gentleman in Philadelphia, who has presented a plan of raising them by pressure. Impressed work is largely accepted and practiced, raising molds into regular forms. The idea is that you may avoid the stretching of the plate irregularly, or as you may say, overswedging it ; and secondly producing an imperfect adaptation. But a plan of casting has been referred to. I have some doubts about it ever becoming practicable, as the manipulation must be carried through so nicely that there are very few would give it that attention requisite to make it a success. It is well known that all workers in jewelery, strike their regular forms by what is called a drop press, not by screw pressure at all. The most perfect adaptation to the jaw that is possible to be made, is made in that way ; and the spinning up of different forms is not done by any such process as has been referred to by Dr. Stellwagen. You cannot coax metals into regular form in that way, as you can in the generally accepted manner of doing it. Gold or platina which is properly prepared for dental plates, can be swedged into shape with very much less force than is ordinarily applied, and the expansion of the plaster mold is compensated for by the shrinkage or contraction in the zinc die, and if the zinc die is of sufficient depth so it won't give, the simple stretch of the lead is no practical objection at all. If a moderate amount of force is spent too upon the die, and you find it being stretched up, you can put a stop to it, and drive it down better than by putting it in a screw press. But the plate must be formed without any cutting at the mesial line, no matter how irregular it is there, the plate must not be cut, but it must be *formed* completely in order to make a perfect thing; and there is no one who has practiced that course but is surprised how perfectly it can be done if you pursue the proper method. I venture to say there are gentleman will take a piece of plate, and put it in the zinc mold and swedge it into shape without putting it in the die at all.

Now with reference to this subject of mechanical dentistry as a whole. It for some reason has seemed to have had very little attention, and it is a thing we cannot do without. There are those who will demand those things at our hands, and it is necessary that we should be able to meet that demand to a certain extent, and in the best manner possible. And, as Dr. Stockton says, if we are not able to do it with our own hands, we should be able to give the proper directions for some one to do the work for us; and there are a great many of us who don't know how to give the proper instructions to workmen to raise plates for us. We don't know how to do it ourselves, and therefore cannot give the instructions; and there are cases where it is impossible for a mere artisan to do it for us.

Dr. F. H. Rehwinkle: This question has caused me a good deal of thought, and I was perhaps accidentally led into the way that put me on the right track. It came about in this way. You know the old Mexican dollars were always considered very fine coin for mechanical use. I don't know whether you do know that the alloying of those metals was done in a very crude manner. You will for instance get possession of a certain piece that was all right; appeared to be carefully and nicely and properly alloyed, and would work very nicely; and on the other hand you would perhaps get one that would work on one side, or one half would apparently work all right, and the other would be sideways and shapeless in the process of swedging the plate. Now what was the cause of it? Evidently it was the manipulation in the alloy. A five franc piece will work with greater uniformity than any other coin I have worked, and that I attribute to the greater care in the mechanical manipulation of alloyed metal. Having observed this I was led to think whether the working of plates was caused by improper or careless manner of alloying metal. A good many dentists who are able to work metal, will find it is sometimes a good half day's work to find a piece of gold they can get into shape to work at all. You take gold; you will find if the press is used easily the plate will warp while the teeth are being swedged; and I have found by taking that plate and reswedging it once or twice, and getting the alloy more thoroughly mixed, that that tendency to warp or twist was obviated. And another thing is, not to get any filings of platina or other metal into the plate.

Before I close my remarks I want to allude to a process for overcoming the tendency in rubber or celluloid plates of producing an uncomfortable or sore feeling in the mouth, and that is by lining the plates with a thin plating of gold. There is no attempt to make the plate heavy enough to bear a plate of rubber. This is different. The celluloid or rubber plate is made in the usual way, with the exception that a very thin plate of fine gold—I would prefer 20 carat, or even coin gold—is put in the ordinary way. That on the outside has on an attachment of a very narrow strip of platina twisted up as a spiral string and drawn out like a cord ; and in vulcanizing or in pressing celluloid the plate was put over the metal and pressed into shape. You will find that will do away with all tendency to sore mouth.

To be Continued.

REGULAR MEETING OF THE BROOKLYN DENTAL SOCIETY, HELD AT THE OFFICE OF DR. BRUSH, MAY 12TH, 1879.

INCIDENTS OF OFFICE PRACTICE.

Dr. **Brockway** : I had a little incident this afternoon. A patient presented himself with a deeply buried root of the right upper second bicuspid. The crown had been broken off for several years, the alveolar process was very thick in the neighborhood of the root, and the gum well grown over it, so that it seemed rather a difficult matter to remove it. After one or two ineffectual attempts with the screw, inasmuch as I did not wish to cut through the process with a forceps to get at it, it occurred to me that I could get it out by cutting it away with a crossbur. Taking a short crosscut bur of pretty good size, in a very few seconds I cut it away so that pus came out, with scarcely any pain and without drawing a drop of blood—that is, no blood to interfere.

Dr. **Atkinson** : I have, to-day, a case that is to me of very considerable interest and to every pathologist who cares to understand the difference between recorded doctrine and the truth in nature. It is not the only case I have seen by any means, and I have kept quiet about it because of the universal opinion to the contrary. The case I refer to is where the process was as tight to the roots of the teeth as in health, and *perfectly dead* and dry, and the gum receded to within one-fifth of the length of the broken roots of the left superior second molar, the teeth remaining firm. And this curious appearance being there, I examined it very closely to see what the nature of the case was, and cogitated what my duty was respecting it. I thought it would be better for me to cut away all dead bone to the living, under the margin of the gum, in hopes of having a reproduction of the gum, and make a nice clean thing where there was a dirty thing.

All who have any knowledge of what the reigning doctrine is, are aware that it is supposed that every piece of dead bone that is in connection with living bone, becomes rotten, and in a short space of time a line of demarkation is set up.

I have said before some of the gentlemen present, that I had seen a case of thirteen year's standing, bone being bare through the center of the roof of the mouth, where the palatine process of the superior maxillary bones united in the mesial line. This bone was as white as if recently exposed. There was no discharge at the margins—no loosening or line of demarkation between living and dead parts. That case is over eighteen years standing, if the lady still lives (she lives in Connecticut).

I want to make mention of another case so that we may have our way clear to reliable information on this subject. I cut out dead bone to-day with the bur of an engine that is a little peculiar; the large bur that is cut with a spiral blade. I added a reversed cut so as to make the teeth stand out like rasp teeth, literally a circular rasp; and that device cuts the bone much more rapidly and pleasantly for the patient than the other. The patient did not have any unpleasant sensation until I came into what I supposed to be living bone. That is an important incident of office practice, in my estimation, that occurred to-day.

Last Saturday another important case came before me; one of cleft palate that had been operated on so as to close lip and gum. The cleft was at the separation between the left incisive or pre-maxillary bone, and the left maxillary bone. The case was presented to me for my advice. The cleft was completely through, and all the soft parts were pendant, but retractive, so that you could look right up to the nares and turbinated bones, and to all appearance the palatal bones are entirely wanting. The point of interest I want to call your attention to, and ask advice about, is the condition of neglect the child's mouth was in; the boy was only eight years old. No attempt to save the teeth had been made. The six-year molars badly decayed. I cleaned them out and dressed them with creosote and oil of cloves, and put in gutta-percha and told the father I would put the *teeth* in good condition and then take into consideration the propriety of stitching the soft parts together, and attempting to give him some separation between his mouth and his nostrils. I do not care to detain you further. If anyone has any suggestions, I shall be pleased to receive it now or any time. I presume the child will remain with me. And there is a peculiar circumstance in the family that is marked, and I would ask those of you who are read in surgical history, if it is not very peculiar to have in the same family three cases of cleft palates?

Dr. HILL: I want to call to your mind your idea of taking away a certain portion of dead bone in the center of live bone with the idea of bringing edges already dead back to life?

Dr. ATKINSON: I have done so repeatedly. Where there is a considerable territory involved, cut through into it by a cross section and lift the flaps of soft parts from the corner and burn away all that very badly necrosed bone leaving edges that were deprived of circulation in the hopes of restoring the circulation through the healthy parts. The majority of those cases have given me very little trouble. The bone can never be resuscitated further than the protoplastic bodies are alive.

DISCUSSION.

Treatment of Exposed Pulps and Alveolar Abscess.

Dr. ATKINSON: I received a notice last Saturday that called my attention to the fact of my being appointed to lead in the discussion of this subject. When that form of the question was adopted I objected to it. I intended to have prepared a paper to read at this time, but I saw that it said "nerve pulp," and that made me catch my breath and stop my heart beat for a moment. I did not like the nomination, and I did not like such a mode of expressing a subject that we have had over and over many times. I will try and say a few very plain things that are only a repetition of what I have often said, and for the adoption of which I have waited and watched and prayed for years—that we should not allow pulps to become exposed in mouths we have the control of, and that we should mourn over all that are brought to us by the possessors of such pulps so sincerely as to show them that we regarded it as a calamity to have a pulp exposed. Because it has been the so-called highest teaching to destroy and extirpate pulps. If there is anything that makes me feel dreadfully it is that a good many so-called respectable men, in fine practices, adhere to that heresy. I know of the case of a lady, forty years of age, where the destruction of the pulp left such a condition that periostitis followed and extensive necrosis was the result. Another case of extracting a right inferior first molar, for a boy eight years old, and the second temporary molar at the same time, for toothache, and necrosis resulted, and in two weeks, lacking one day, from the time I was consulted (which was within one week from the extraction of the tooth), I burred out the corium of his little jaw from the seat of the mental foramen to the ramus. They now are connected together and, in my mind, are standing in the relation, if not of cause and effect, of antecedent and sequent. It would take a good deal of talk and some blackboard demonstration to make myself understood about this. If a pulp is exposed, treat it with disinfectants and cover it up, and wait for recuperation, and if it dies take away the portion that is dead, but don't meddle beyond the point where a slough has occurred. Dr. S. S. Daly took me to task for that, and said he had done the other thing. I can only reiterate what was said then, and the only point of difficulty is to induce dentists to study the use of the bone, as supports to the roots of the teeth, and behave themselves in accordance with the laws of the vital action in the parts. I do want to see the dentists stand where they belong. I want them to be masters of the profession they practice. I regard the destruction of pulps as inexcusable; and these remarks are directly in line of thought with the subject of exposed pulps and alveolar abscesses, because they are in such close relation that we scarcely get one in a hundred of alveolar abscesses, where there are living pulps. I have had a few instances. A Miss Brown was in care some thirteen or fourteen years ago, and it proved to be death of the corium of the inferior maxillary, at the site of the first permanent molar. That was one of the cases I burred out and hoped I had cut all the dead portion away. I allowed it to heal, and a little spicula of dense bone came out afterwards, and when that was out it healed. In every case of periostitis, if we can diagnose its exact location, all that is necessary is to cut through the periosteum into the bone itself, and if you can, cut through the corium into the cancellous portion by a cross section, be sure that you get at the dead bone so that the pabulum may fill the pocket and be converted into new tissue. You need not do anything else if the parts have any health at all. Hosts of pulps have died and no periostitis followed at all. I have seen a case, that of a Mr. Daly. The right superior central incisor was filled years ago, and I filled into the root of the lateral incisor next to it, and when there was an abscess on it, and built it up some four years ago, and it healed nicely and cleanly; and for the last few months he supposed it was going to break out again, and came to me within a few days, stating he had an annoyance in the locality, indicating it to be at the end of the root of the bicuspid, and I asked him if there was any evidence of periostitis. I then looked at it and said I guessed the pulp was dead, and asked for the history of the case, and he was quite of the idea that the pulp was not dead. I drilled in and found the chamber filled with pus, and an abscess on the end of the root. I went completely through with the "Morrison drill," and he said I went up to his eye. That was a case of latent periostitis presented, because the patient was healthy enough to prevent extensive inflammation of the parts.

Dr. CAMPBELL: In the treatment of exposed pulps I have used white oxide of zinc and creosote with very good effect. I have tried various kinds of preparations, including Weston's cement, and have failed; but Fletcher's cement I have tried several times, and find that works very nicely. I have never had a failure with white oxide of zinc and creosote.

Dr. ATKINSON: The case I reported of a little boy who broke his teeth off, I saw, a week ago Saturday, doing admirably; both pulps living and doing very nicely. What awakened my recollection of that case was the use of the zinc. You will remember in my detailed account of that case, I had cut off the ragged, bruised ends of the pulps, and dressed it with a very thick sandaric varnish first, before putting the zinc over them. That case is doing very nicely, and I expect there will be a good formation of dentine and the teeth saved.

Dr. MILLS: A case of interest came into my hands to-day brought by a dentist; a lateral and central incisor, pulp dead, teeth discolored quite a good deal. There was a fistulous opening to the central. I opened the palatal portion and dressed through the canal with the saturated solution of chloride of zinc, and expect results looking towards a ready cure. The lateral I found more complicated; no fistulous opening. I drilled through the palatal portion and continued to the apex and drew blood. And also in this case, I expect only good results. This was a (so-called) fluid abscess. I pursue this treatment in such cases (drilling through the apex). I was told by the patient that her former dentist said the root was crooked and he could not drill through, but I found, on examination, he had made the attempt and had chopped through into the soft tissue, about a fourth of an inch above the pulp chamber. I propose to change the color of these dark teeth by filling the chamber with white cement and get an improved one by the refraction of light. Now, a word about alveolar abscesses in general. I have come to view the treatment of them as being very simple. Dr. Atkinson has been demonstrating his methods of treatment before us for several years, so now all there is left for us is to accept the rationality of it and put them into practice. The drilling through the apex and the going through the process on the labial surface of the gum, is a very easy and simple matter, both to patient and operator, especially if he *believes* in the operation: this inspires confidence and puts the intelligence into action. For opening through the apex, I often use the twist drill, if I find the canal quite free and direct. I use a triangular shaped reamer at the end of a long flexible shaft placed in the engine, with a diameter approximating to the size of the canal, by this I am able to enlarge the opening at the apex with little labor and loss of structure; in these openings be SURE and DRAW BLOOD. Many of these cases will admit of being filled at once. However, judgment gathered by experience and intelligence must be the guide. Necrosis associated with abscess is simplified in most cases by removing the dead bone at once with the engine bur. We can be assured that we have arrived at an era in minor surgery when we should have little doubt and delay.

Dr. CRANDELL: Speaking of drilling through the side of a root. I had a case in which the pulp was evidently dead. The tooth was the second superior bicuspid and had a large gold filling, involving the grinding surface to a large extent. The operator had drilled through to the center of the tooth, which, perhaps most operators would do, the filling being perfect, and desiring evidently to preserve that filling. The lady said it hurt very much, not so much from pressure of the tooth, but the drill very soon seemed to enter where there was life. The case came into my hands and the tooth was abscessed, and upon probing into this hole he had drilled into the center. I handled it very gently and blood flowed quite freely; and while the soreness had subsided in the tooth and socket, it was very sensitive upon touching it, and I did not feel quite clear about it. Finally I took this filling out and found that the tooth had two roots, and the bisection extended very near to the margin of the gum, and the operator who drilled, as I spoke of, had gone right into the bisection, and there were two distinct canals the whole length of this root, which I removed without much trouble. They are unusually large, and perhaps I might say remarkably large bicusped teeth. I think very likely myself I should have drilled about where this gentleman did.

In regard to this matter of alveolar abscesses, I would like to ask the gentlemen present—perhaps it would be interesting to know—what their ideas are about the condition, methods and principles of treatment of alveolar abscesses. We have one member of this society who claims to be somewhat original in treatment and instruments. I refer to Dr. Farrer, and I would like to know how many gentlemen have made use of his syringe and have drilled through the socket I think some gentlemen advocate this procedure for periostitis.

Dr. Mills : Just in a word, I would give my own testimony in regard to that. To me the matter of alveolar abscesses has become a matter of very simple treatment. I find they may be kept under perfect control. The matter ofgoing through the process to the root is one of the most simple operations, and yet it has been one of the greatest bug-bears to me until I had sufficient confidence in the treatment. I look upon them as very simple indeed, and I adopt this method, not only in the treatment of alveolars, but also necrosis.

Dr. Brush : There is one case that came under my hands, a year or two ago, and came under my notice again a short time since, of a fistulous opening which is below the inferior canine. It came into my hands say two years ago, and was discharging through that opening. I then drilled into the canine. It had quite a large amalgam filling ; I took that out and found the pulp canal ; the pulp was dead. I cleansed the cavity, and the opening healed up, and after what I supposed was a sufficient length of time, I filled the root and discharged the patient. I saw nothing of him until about a month ago, when he came into my office, and said that it had remained all right for some little time and had then broken out again, and had been discharging ever since. I felt very sure I had filled that root to the bottom, therefore, I did not take out the filling. I made an incision into the gum near where I believed the apex to be, right through the alveolar process, and then took my probe and went into the fistula from the outside, the probe came into the incision I had made. I then injected sulphuric acid. I then drew a twine of floss silk and left it in for influx. Afterwards, on the third time I saw him, I took a drill and bored out pretty thoroughly around the root of the tooth—bored away the process and then left the twine in again. The last time I saw him, or rather the time before the last, I left the twine out—did not carry it through to the outside, just put in a twine into the one opening and said we would let that heal on the outside. When I saw him three or four days ago, it had healed up nicely on the outside. I have now the opening on the inside, and all the discharge, whatever there is, is from that opening. I expected to see him again to-day, but he did not appear, and I cannot report further upon it.

Dr. ATKINSON: I would now like to name another case. Six or seven weeks ago a gentleman came with two osteal cysts at the site of the left inferior first and second molars. They were about as big as marbles that would be half an inch through, and made the tumor appear very large. I found on the anterior one a point that I thought was a little thinner than anywhere else, and I cut over that, pulling the soft parts back, and went in with this cross-cut bur, and found I was in an empty chamber without any sensation to the patient. I burred out until he began to complain of sensation, then I felt I was against the point of junction of the two, where they joined by a partition of dense bone. I went right through the corium of hard bone and burred that out in like manner. I washed it out with water and dressed the cavity, then injected elixir vitriol, full strength. Repeated that treatment several times in several weeks. To-day I saw it, and the posterior portion is down smooth, but soft from the side of the first molar, which is pulpless. The roots are still bare, but it is building up. I have kept the fistula open, so as to be sure the building came from the bottom, so as not to inclose debris and reproduce the mischief. I asked him to leave it without any dressing until I could see it Saturday.

Adjourned.

SECOND QUARTERLY MEETING OF THE SECOND DISTRICT DENTAL SOCIETY, HELD IN THE MAYOR'S ROOM, NEWBURGH, N. Y., JULY 10, 1879.

INCIDENTS OF OFFICE PRACTICE.

Dr. C. D. COOK: A gentleman came to my office some weeks ago, complaining of trouble in the right superior second bicuspid. He said that three or four days before, in taking lobster salad, he got something hard between the teeth, and had a very severe pain on that side for the instant, but after a little it passed away. After that he found that food of the softest kind would cause pain. I looked at the tooth, and thought at first nothing serious had occurred, but on further examination I saw, as I thought, a little separation of the cusps, and it proved to be a fracture directly through the center, each cusp standing remarkably firm in its position. The gentleman was from 55 to 60, and the teeth were very strong and not specially worn, but the articulation of the under teeth with the upper was very exact. The fracture did not destroy the life of the pulp. The treatment was, hooping it with a platina band. The first operation was not a success, but the second was ; that is, his not reappearing gives reason to suppose that it was.

Dr. Wm. Jarvie, Jr. : A second molar was brought to me some years ago in which there had been a cavity, which was filled some thirty years before, leaving the tooth just as strong as originally, yet, it was split directly through the center and the pulp was dead. The gentleman did not know what caused it. I treated it in the same manner as the case related by Dr. Cook. A month ago I had a somewhat similar case, but for the band I used platina and irridium ; that being much stronger than platina alone, you can get greater strength with a thinner band.

Dr. J. H. Race : Dr. Cook, you will remember the case I treated, of a little boy who had a tooth knocked out, and which I replaced. It stood pretty well for eighteen months, but the other day he came to me with it just hanging, and the alveolus all absorbed, leaving the whole tooth exposed.

Dr. Wm. Jarvie, Jr. : When we see cases of teeth that have been knocked out, and replaced, and have been apparently firm for quite a number of years, and then become loose, is it wise to extract the teeth, treat and return them ? A gentleman informed me that he had performed a number of such operations within a year ; had removed the pulps, filled the pulp cavities, cut the end off the root and polished the roots on his lathe, so as to give them as high a polish as bone would receive, and returned the teeth to the socket. In each one of those cases he had met with success, and he declared to me that in several of them he believed a union had taken place between the socket and the teeth, from the fact that there was no movement whatever when pressure was applied, and he is not alone in this belief. Some western gentlemen who are quite eminent, I believe, hold the same belief, that in many cases anchylosis occurs. Of course, that could be proved only by extraction.

Speaking of his experience with transplanting, this gentleman told me that in three cases the results had been such that he would not attempt to do anything of the kind again.

Dr. C. D. Cook : In alluding to Dr. Jarvie's remark as to the uncertainty of proof, a young man showed me the right superior lateral incisor, which was knocked out and replaced when he was in college, and the tooth was simply discolored, but was as firm as any of the teeth, and there was every reason to believe it was likely to last eight or ten years longer.

Dr. C. F. ALLAN : Speaking of the length of time that a replanted tooth can remain in the jaw without giving trouble. A gentleman had the wrong tooth taken out ; it was immediately replaced, and twenty years after, when I saw him, it was still there and did not look like a dead tooth.

Dr. T. W. DUBOIS : I am acquainted with a case where a Poughkeepsie man was thrown from his wagon, some twelve or thirteen years ago, and had some of his teeth knocked out. Two of them were picked up in the road, and replaced, and one of them is just as good and appears as well as any tooth in his mouth.

Dr. C. D. COOK : It has occurred to me, that possibly we had reason in these later days to look for better results than the fathers seem to have obtained in the transplanting and replanting of teeth ; because, we look after them better, and fill teeth which they would have extracted without hesitation. To-day we do not extract a tooth simply because it is paining, there must be some other, more serious reason, to lead to that operation.

Dr. J. J. PITTS : I was called upon last week to extract three teeth for a girl about twelve years of age. It was a new experience to me, as she was mesmerized. The operation was entirely painless, although she knew all about it. I dropped one of my forceps on the floor, and she stooped down and picked it up. I wanted to call in some of my neighbors to witness the operation, but her physician told me he was afraid it would pass off if we called anyone in.

Dr. S. B. STRAW : I think there is a gentleman in this room who has had some experience of this kind. I refer to Dr. L. S. Straw.

Dr. L. S. STRAW : I remember, when I was a mere boy, there was an exhibition to be given at the public hall, and, among other features of the entertainment, the psychologist wanted to perform a surgical operation, and decided to extract some teeth, and asked me to perform the operation. When the lady was fully under the influence of the operator, I went upon the stage and extracted one or two teeth with the old-fashioned turnkey, and hurt her as much as was possible, but during the entire operation not a muscle of her face moved.

Dr. A. H. BROCKWAY : The incident which Dr. Straw has related, reminds me of a similar experience of my own which was not quite so fortunate, but illustrates the same fact, that persons can be put in a condition where they are insensible to pain. I remember when I first "set up on my own hook,' as the young butcher said, I was called into a mesmeric entertainment. I don't think I had ever extracted half-a-dozen teeth in my life, and you can readily imagine I was very green. I was called upon to extract a left molar for a young man, and, with great trepidation, I laid hold upon it in the presence of the assembled multitude and very vigorously sawed upon it for awhile, but was unable to extract it, but I did not get a wince from that young man, for a moment, it must have been, but it seemed two hours to me, so I know that a great amount of pain can be caused without a person feeling it.

SUBJECT FOR DISCUSSION: "BLEACHING TEETH."

Dr. L. S. Straw: I have been in the dark all my lifetime in regard to bleaching teeth, and have never succeeded in doing anything in that line worth telling here, but I feel confident that, from the intellect here assembled, we can learn something.

Dr. Wm. Jarvie, Jr.: I think at the last meeting of the Brooklyn Dental Society, it was said by Dr. Atkinson that where the discoloration returned after bleaching, it was due to defective manipulation, and I was very much inclined to believe it.

Some of you will remember a case I spoke of, at one of our meetings, where a young lady had broken off a lead pencil in her tooth, and the tooth had become discolored I bleached and filled this tooth with apparently good success. But, in the course of a few months, she returned to me for treatment, and I found there was a return of discoloration, and I accepted the theory that near the neck of the tooth the filling had been defective, and that there was a slight opportunity for small particles of foreign matter to penetrate between the filling and the outer surface of the pulp cavity. But a short time ago she came into my office with so large a portion of the crown broken off that it was deemed best to cut off the crown and insert a pivot tooth, which I did. I then had a chance to see about the manipulation and where the discoloration took place. As near as I could tell by the magnifying glass, the filling was perfect. If it had been a metal filling, I might have imagined there was a leakage. There was a greater discoloration at the neck of the tooth than at any other place, and I had the ends so nicely cut off, you could see where the deepest color was. It seemed that the discoloration had worked down from that point; but the question is, how did it get there? I have a tooth in my hands now, and I would give something if anyone would tell me how to bleach it. It is a central incisor and has been in my hands now for about three years. The lady had a great deal of pain in the tooth, and finally the dentist decided the pulp was dead, and drilled in and removed it, and filled the cavity. When he got through the tooth was quite white, and she went home delighted; but, in a short time it was darker than ever, and it is so gray I have not the least hope of restoring the color. The other central incisor was one in which the pulp was dead, and was very similar to the first one; there was a small cavity in the proximal surface. It had been paining her, and the pain suddenly ceased; and within two or three days there was a decided discoloration in the tooth. That tooth I treated and I think it is as perfect as any tooth I ever saw. I could hardly say what my treatment was. It was ten years ago, but I presume I cut out all the discolored dentine and lined with the whitest oxychloride filling I could get.

Dr. R. C. Brewster: I would like to know a little more as to what the chemical reaction is where oxychloride of zinc is used,—whether the teeth are more liable to turn black after that than where some other white filling has been used. On three occasions I have had success by using bicarbonate of soda, leaving it there as a permanent filling and putting oxychloride of zinc over it, and then covering that with gold.

Dr. O. E. Hill: In bleaching teeth you can get the color, but the trouble is to retain it. Then the question with me is where this discoloration comes from,—or why, after we have bleached a tooth perfectly below the gum, after a few hours it darkens? We bleach the crown of the tooth so it is satisfactory to us, but the root is still discolored. Now we all know the discoloration cannot come from the outside of the exposed part of the tooth; it always comes from the root down. A tooth does not discolor from the cutting edge up to the gum, but from the root down to the cutting edge. Now the question suggests itself, if you were to remove the tooth that is discolored from the mouth, bleach it perfectly through and through, and fill it, would it not remain in that condition? You remove the filling and bleach a tooth; in a short time that tooth is again discolored. Now, where does that discoloration come from? It comes from the root, and until we do something to remove all discolored matter from the root of the tooth, we cannot get rid of the difficulty.

Dr. C. D. Cook: I would like to ask, if Dr. Hill means that this discoloration follows the tubuli of the dentine, how does it get there?

Dr. O. E. Hill: That is just what I am trying to find out. It does not come from the outside, but from the inside, and how does it do so unless it comes from the root downwards. Now, when you come to ask me how it gets there, I cannot tell you, and I don't believe there is a man living that can tell. Just exactly as I believe in a great many things that are beyond the comprehension of the human mind. One says it is iron, and another it is a vegetable matter and it comes from the blood, and yet you will tell me that when a tooth is filled and hermetically sealed, not a particle of blood can get to that tooth from the outside or inside: but it discolors from the root down, and how does it do it? You cannot tell, but nevertheless it does. And I tell you when fact comes in collision with science, science must go down every time.

Adjourned.

NOTES.

The Sixteenth Annual Meeting of the Conn. Valley Dental Society.

The Sixteenth Annual Meeting of the Connecticut Valley Dental Society will be held at the Haynes House, Springfield, Mass., on Thursday and Friday, October 16 and 17, 1879, commencing on Thursday, at 10.30 A. M.

Officers: President, C. A. Brackett, Newport, R. I. Vice-Presidents, C. S. Hurlbut, Springfield, Mass.; C. Fones, Bridgeport, Conn. Secretary, C. T. Stockwell, Springfield, Mass. Assistant Secretary, Geo. W. Crittendon, Northampton, Mass. Treasurer, Newton Morgan, Springfield, Mass. Executive Committee, P. H. Derby, Springfield, Mass.; James McManus, Hartford, Conn.; J. M. Davenport, Northampton, Mass.

As heretofore the profession generally are cordially invited to attend, whether members or otherwise. A full attendance and a good meeting is confidently expected. The Executive Committee hope that members will be promptly on hand at the hour named for commencing, in order that the business, including the election of officers, may be transacted, if possible, at the first session, leaving the remaining sessions free for papers and discussions. The Committee also congratulate the society upon the anticipated presence of several prominent dentists from other States and societies. Dr. F. Y. Clark, of Savannah, Ga., and Dr. John Allen, of New York, are invited to be present as guests of the Society. Dr. Clark will read a paper as announced, and Dr. Allen writes that he shall be most happy to accept the invitation, and will be present if possible for him to do so, in which event he will read a paper.

Dr. Clark is a prominent member of the profession at the South, and also of the Southern Societies. Dr. Allen is President of the American Dental Convention, and a gentleman well-known to the dental profession for the last fifty years.

Dr. Searle will re-read, by request, his paper on Diagnosis.

Prices at the Haynes House will be from $2.00 to $3.00 per day. Accessible rooms may be obtained for the use of manufacturers and dealers in dental appliances and supplies, by applying to the hotel, or the Chairman of the Executive Committee.

Please make a memorandum of the dates in your appointment books. Per order of the Executive Committee.

C. T. STOCKWELL,
Secretary.
Springfield, Mass., Sept. 22, 1879.

An Important Improvement in Paper Manufacture.

We have recently secured, through the "Scientific News" Patent Agency, a patent with broad claims, covering a process and product which we venture to assert will prove a very important advance in the art of paper-making.

The inventor is Mr. Adolph Seyler, of 393 Nostrand Avenue, Brooklyn, N. Y. The improvement consists in a process for making paper or paper pulp from common field, lawn or meadow grasses, taken in a fresh and green condition; also in the product of the process.

The treatment of the grasses in the fresh, green condition, results in a most important improvement in the quality of paper, as compared with paper made of the same material after it has become dry.

Flax or linen has hitherto been the best material known out of which paper could be manufactured, its analysis showing the smallest percentage of ash. An analysis of the common grasses shows them to approach more nearly to flax in this respect than other materials; but when fully matured the fibre obtainable from the grasses has not the strength, fineness or flexibility of flax fibre. When the grasses are treated green, however, its fibre is very fine, flexible and silky, and the paper produced from it, as shown by specimens now before us, approaches very nearly in quality to the finest linen paper, possessing, if anything, a more transparent, soft and silky texture. A very fine quality of paper may thus be made from the abundant growth of grasses on salt marshes, which has hitherto been very little utilized.

The main features of the process are as follows: The grass is first crushed by a roller-press, which squeezes out a portion of its natural juices and partially separates its fibres. The sap squeezed out may be collected and retained for a fertilizer. The crushed grass is next thoroughly washed in a large tank to remove adhering earthly matters. A tank with a perforated bottom is preferred, as the dirt and water pass off through the perforations. The washed grass is next boiled in a solution of caustic soda, or potash, or lime, in the proportion of about 1-10 lb. of soda, 1-5 lb. of potash, or 6-10 lb. of lime to every 100 lbs. of the grass. If the boiling be performed in an open kettle, five hours' boiling will be required. If a steam kettle be employed, two hours will suffice.

The material is then removed to a feltering trough, in which it is subjected to two hours' beating and feltering, and then thoroughly washed in clean water.

The felt, or pulp, thus obtained is then refined and bleached by first steeping it in a cold bath of carbonate of soda for fifteen minutes; second, steeping it in dilute solution of sulphuric acid for about the same time; third, steeping again in a carbonate of soda bath; fourth, steeping for thirty minutes in a bath of chloride of magnesia; fifth, steeping a third time in carbonate of soda solution, and lastly a second steeping in dilute sulphuric acid.

The repetition of these operations secures any degree of fineness or whiteness required.

However, the bleaching and refining may be performed in a variety of ways, and the inventor does not confine himself to the particular process described.

Mr. Seyler will sell the right to his invention in Canada, and State or County rights in the United States. From what we have seen of the product, and from estimates of the amount which can be produced from an acre of productive land, we are of the opinion that this invention is well worth the attention of capitalists. —*Scientific News.*

JOHNSTONS'

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THE DEATH OF MR. GARDINER.

By A. C. Castle, M. D., New York.

> Be thou a spirit of health, or goblin damn'd,
> Thou com'st in such a questionable shape
> That I will speak to thee * *
> —*Hamlet.*

The recent death of Mr. Gardiner, published by the New York press, has called forth theories, remarks and criticisms more remarkable than even the extraordinary exaggerated statement of the symptoms of his malignant sickness. It is not necessary for me to dwell upon the supposed cause of the malignant character of the remarkable disease described, producing the decease of this gentleman; a disease accompanied by symptoms of no common order, and with statements of the most preposterous and impossible results, short of his death, that have been ever proposed to the medical world, or to a sensation-seeking community.

I will here endeavor to show that the disease, which was the cause of his sudden "taking off," was not due either to mal-practice on the part of the *dentist*, whoever the other party may be, or to the limited quantity of arsenic ordinarily introduced (if any arsenic had been introduced into the cavity of the tooth, of which no proof has been offered), for the purpose of removing the dental nerve. I need not insult the intelligence of the dental practitioner at this late date, by telling him what he already knows; but I must repeat, that arsenic is brought in contact with the dental pulp, &c., in a state of acute inflammation, caused by the decaying tooth leaving the nerve exposed to the irritating effects of the atmosphere and acrid eliminations in the mouth. The application of arsenic for this purpose is not from the humane motive of relieving neuralgic distress, but to save the tooth and fill it afterwards, otherwise it would be better to extract the offending organ at once. Hence, "destroying nerves" has become a universal practice *without exception.* For the purpose, then, of eradicating the intro-dental nerve with the view to save the tooth to the owner, the decayed matter surrounding, and extraneous matter covering the nerve, are carefully removed, and about *one-sixtieth part of a grain of arsenic* is placed in direct contact upon the surface of the nerve; this is covered with a pledget of lint saturated with creosote and morphine, a combination that modifies the action of the arsenic to a great extent, so that much irritation and shock to the nerve are prevented; over this, again, a pellet of cotton saturated with collodion is carefully placed, so that the arsenic is hermetically closed within the cavity of the tooth—(that none shall escape), and that its action shall not be interfered with by the entrance of external foreign matter. Here we find a supposed difference of action of arsenical treatment, viz.: In some, causing an increase of pain, and in others causing no pain whatever—my experience explains the circumstance thus: If the nerve pulp, at the time of applying the arsenic, be in an inflammed condition, causing the pain termed the toothache, we find that two-thirds of the primary action of arsenic is already accomplished by anticipation, as it were, and the arsenic affords the *coup de grace* at once by allaying all irritation and pain by the finishing process of the rapid disorganization of the nerve—this is what we mean by destroying the nerve. On the other hand, the nerve pulp being exposed, but *not* in an inflamed condition, the irritating contact of the arsenic with the nerve necessarily super-excites this preliminary inflammation and concomitant pain previous to its effecting its final disorganization. In several instances, in my practice, I could not succeed in bringing the dental nerves within the influence of arsenic; it producing no effect whatever.

Anterior to the knowledge of creosote, introduced by Monsieur Chabert, the celebrated "Fire King," in 1837, who sold it as a secret remedy for curing toothache, arsenic was used alone for destroying the nerve, causing the most excruciating pain for an hour or two, *with no other harm* ever resulting from its exhibition.

The local injury to be apprehended from the introduction of arsenic into the cavity of a decaying tooth, inheres in those cases where arsenic is ignorantly placed in cavities *wherein the nerves are not exposed*, but are perfectly enclosed in their own bone chamber. Such teeth often pain as acutely as do cases of exposed nerves, and arsenic applied to these penetrates the *tubuli* of the bone, reaching to the nerve pulp, super-exciting intense congestion, and acute inflammation and pain. There being no space for the nerve pulp to swell, the whole dental nerve system—as in the inflammation of teething children—is implicated, and tumefaction of the gums, with swelling of the face, etc., follows. Extracting the tooth, at once relieves all these symptoms, or perforating the bone chamber, aiding the escape of the pent up matter, slowly relieves, and ends the distress. Where acute periostitis is present, more active treatment is necessary. These accidents never occur to professional men of education and experience. I have met with several cases, where, as Dr. Latimer terms them, "gutter-snipe dentists" have actually placed arsenic between the alveoli and gums, causing great distress and necrosis of the socket holding the two teeth between which it was placed. The character of the dental profession must not suffer from such blunderers as these.

The local accidents attending the therapeutic exhibition of arsenic are, as a rule, solely attributable to the culpable inattention of patients themselves, for which the dental practitioner can be in no way held responsible or answerable. Patients are particularly cautioned and admonished to frequently wash out their mouths with water; to keep a piece of raw cotton between the tooth containing the arsenic and the cheek, until the arsenic is removed. They invariably promise attention, observance, and obedience to the directions given by their professional adviser; but no sooner are they from his presence than, like a child escaping from its music teacher, they forget and neglect every precaution (so much so, that a wag of a dentist once observed to the writer, "Every person seems to think that from the moment they employ the services of a dentist they are privileged to abuse him ever after"), the result is a troublesome, escharotic black canker sore, about the size of a pea, upon the inner cheek, coming in contact with the tooth. These sores, although more painful, yield to treatment the same as ordinary canker sores of the mouth, and the injury ends. There is not a dentist—he having the courage to acknowledge the fact—who has not met with these provoking cases in his practice, and, no doubt, been well abused too therefor.

There are some cases, however, notwithstanding all possible precaution, in which these petty accidents cannot be wholly averted, for example—In those shallow concave cavities, yet reaching to the nerve, on the outside faces of the molar teeth, a fractional portion of arsenic will ooze out at times, causing an escharotic ulcer upon the mucous membrane of the cheek : this, a wash composed of tannin and opium, cures in a few days. The bold assertion, made in the case of Mr. Gardiner, that the arsenic placed in his tooth—assuming, for the nonce, that it was placed in the tooth—could be washed out, mixed with the saliva, and hence absorbed into the circulation of the blood, and thence produce such a grotesquely extravagant dissolution of continuity of the head and body, as published in the "Times," with fountains of blood spurting, *seriatim*, from numerous blood vessels as they were severally corroded into, is the very grandeur of hyperbole, but is too attenuated either to hang a supposition upon, or to offer sufficient evidence in toxicological medical jurisprudence to cremate a dentist.

We have the views—ex-cathedra—if correctly reported, in the case of Mr. Gardiner, of two prominent gentlemen who severally assert that they are "opposed to the use of arsenic, but all dentists use it." The question naturally suggests itself then, why *they* continue the use of it in their practice? The one says—see "Times," Oct. 8—"When arsenic is introduced into the stomach it has *to do much* and to *pass* (!) *through much* before (!) it can *reach* the *seat* of its fatal work," (where is the *seat* of its fatal work?) and by the time it *gets there* it *may* (!) be *so diminished in quantity* that it will *not prove fatal!*" The underlining is mine. We are here presented with a new bearing of toxicology in the scientific evidence of medical jurisprudence, as well as in the therapeutic *modus operandi* of this mineral. The gentleman continues : "But when arsenic is placed directly in contact with the blood the case is *altogether* different, and *every particle* of the poison *works* at *once* with *full effect.*" (How does the gentleman prove this assertion?) "When a person" (mark, when !) "*is poisoned with arsenic* through a dental operation the poison is placed in contact with the blood at once, and hence the danger." The other gentleman is also reported as "being positively opposed to the use of arsenic in teeth to kill nerves." This gentleman states that he always *cemented* the poison in the teeth, and had to *drill* out the *cement* to remove the arsenic from the arsenical cavity. I do not wonder that he is positively opposed to the introduction of arsenic, for he places the tooth and the patient exactly in the position I have described above, when introducing arsenic in decaying teeth *where the nerves are not exposed.*

Now, Dr. Christison—the great toxicologist, and among the first of authorities—divides the poisonous effects of arsenious acid into three orders of cases, according to their character and violence of the symptoms. In the first order the poison produces symptoms of irritation and inflammation along the course of the alimentary canal, and commonly kills in from one to three days. In the second, the signs of inflammation are moderate, or even altogether wanting, and death occurs in five or six hours, at a period too early for inflammation to be always fully developed. In the third order of cases two stages occur; the first stage being characterized by inflammatory symptoms, as in the first order; the second by symptoms referable to *nervous irritation*, such as imperfect palsy of the arms or legs, epilepsy, tetanus, hysterical affections, mania, and coma. It is the *general character* of this poison to induce *inflammation of the stomach* in almost all instances, *provided death does not take place immediately*, WHATEVER BE THE PART TO WHICH IT IS APPLIED. Thus, when applied to a *fresh wound*, it will give rise to the *same morbid appearances in the stomach and intestines, as when it is swallowed.*

Since writing this article, I have read several published statements to the effect that Mr. Gardiner, who, like many others of this class of nervously impatient patients—a perfect nuisance to the dentist—had been running from dentist to dentist until he alighted on Dr. W., of Boston, and placed himself under his professional counsel. The Doctor removed the *gold* filling (what would the dental Mrs. Grundies and the rest of the world have said if the tooth had been filled with *amalgam* in place of gold), and finding decaying matter beneath it—"a capping," I am informed, that had been placed over the nerve when it was filled—he removed it, and proceeded to treat the tooth as presenting an "alveolar abscess." The Doctor says he applied "traction," with relief to the patient, and he gives expression to his opinion that had the same treatment of traction been proceeded with in New York that the case would have resulted more beneficially. Forming my own opinion, based upon the practical experience of nearly half a century, I am seriously inclined to add that if medical treatment had been let alone, and the syllable *ex* had co-joined with the syllables of *traction*, the conjoined *extraction* of the tooth would have been the *secundem artem* treatment, greatly to the benefit of Mr. George Gardiner himself, and certainly superior to the scientific bosh claimed for the treatment of alveola abscess.

What are the medical properties and uses of arsenic? It is used internally as an alterative and febrifuge, for which purpose Fowler's Solution and Donovan's Solution are used. Externally it is an irritant and escharotic. It is used in schirrhus and cancer, *especially cancer of the lip.* It is injected in cancer and malignant affections of the *uterus* in doses of a twentieth of a grain, three times a day. "This dose was given three months without producing unpleasant feelings." Five cases of snake bites were successfully treated by Mr. Ireland in the Island of St. Lucia, by one grain doses in the form of Fowler's Solution, every half hour until the patient began to revive, purging and vomiting resulting. Mr. Cooper, the distinguished surgeon of London, applied it to malignant ulcers and cancer of the lip, and cancerous affection of the roots of nails, etc. Arsenic forms the *chief ingredient* in all empirical preparations sold to cure cancers and malignant ulcers. I incidently mention these applications because they not only are brought into contact with the blood, but are in direct connection with the *circulation* of the blood throughout the system. With all these evidences of the external application of arsenic I am of opinion that it will be difficult to demonstrate that the sixtieth part of a grain of arsenic secured in a bone cavity, even if the whole of the fractional quantity should have been absorbed into the blood, can be regarded as the cause of the gangrenous rotting of Mr. Gardiner's face and head.

Gangræna oris; cancer or cancrum oris commences "with a hard, shining swelling on one cheek (generally the left), without pain or redness. On examining the mucuous membrane of the mouth, one or more blisters, or white eschars will be found on the internal surface of the cheek, lips, or gums. These gradually increase in size and discharge a dirty sanious fluid of a highly offensive odor: the saliva is, at the same time, increased in quantity and flows from the mouth mixed with membranous shreds. The swelling of the cheek increases till it involves the eyelids and lips. A dark livid spot now occupies the center of the swelling, increases in size, softens and sloughs. Gangrene having set in, makes rapid progress, both within the mouth and on the surface, and at length involves the whole of the cheek, lips and gums and in extreme cases the nostrils, eyelids, neck and pharynx; the teeth fall out, and the bones of either or both jaws, and even the cheek and frontal bones are ultimately attacked, with hemorrhage from the separation of sloughs, &c. It usually attacks children between one-and-a-half to twelve years of age, more rarely between fifteen to thirty years, and still more rarely, up to seventy years."

If human philanthropy, medical benevolence and the charity of public sentiment would rise rampant in a good cause, I would advise their venting their sympathy in relief of the physical suffering of hundreds of poor girls among whom, almost to an equal extent as in Mr. Gardiner's case, there is occurrence of the symptoms above related. They are employed dipping matches in phosphoric preparations, and inhale the deadly fumes of phosphorous. Surgeon Carnochan has amputated the jaws of several. I have seen and treated many. They present a sad and painful sight.

The dental profession is constantly being placed in an anomalous position—a sort of chronic perplexity regarding its status—hence it is compelled to submit to a sort of hybrid organization, four-fifths mechanical and the other fifth medical. At one moment the public breath exalts "American-Dentist" as the pass word all over the world, for super-excellence above all the other dentists. At another moment an accident occurs—a person dies under the influence ot laughing gas or chloroform, and another is reported to have had his head absolutely rotted from his shoulders from the effects of a mite of arsenic placed in a rotten tooth ; and the same public breath denounces the ignorance of the dentist, demanding almost the immediate assemblage of the Legislature to pass restrictive laws preventing the presumption of its members using "edged tools."

An occulist, an aurist, a surgeon, with the doctor, may speculate and experiment with poisons infinitely more deadly than arsenic, and when they fail, recommend country air, a voyage to Europe, or (with the weight of a Lord Burleigh's wisdom) commence *de novo*, "to improve the general health." It is now about two years since the *fashionable* Bright's Disease of the Kidneys terminated its reign, and bright as the morning star our kidneys are no longer suspected ; they are all right now. There is no joy without a sorrow, "Malaria" assumes the reins and triumphantly fashions the disease to the hour in its stead, usurping the accursed fashionable diagnostic throne. If a surgeon ligatures a nerve in tying a blood vessel, implicating a nerve within the knot, and the patient dies of the attending lock-jaw (tetanus), the accident is overlooked, and the sexton covers the fault. If a person dies under the effects of chloroform, the intelligent jury returns a verdict of accidental death—admonishing not to do it again. But let the accomplished dentist, with all his collegiate lore oppressing him, propose to a debilitated patient a dietetic regimen, and a tonic course of medicine with a view "*to improve the general health*," previous to attempting the restoration of a healthy mouth and teeth. O! they will consult their family physician, whose sensitive nature at once perceives the necessity of preventing a D. D. S. inpinging upon his medical domain. "O," he replies, "he's *only* a dentist; what *can he know* about these matters. Let the shoemaker stick to his last. You had better consult Doctor Nunsucher, a very superior operator; all the physicians send their patients to him." So the D. D. S. loses his business or submits to be snubbed a mechanical dentist, and spends his aspiring ambition in making fancy fillings, which more than consoles him, as it pays the best.

Dr. S. Spooner, a gentleman of erudition, fine culture, and great æsthetic taste, who, at much trouble and expense, procured and restored the celebrated Bodliean engravings, illustrating Shakespeare's plays, who also published a "Dictionary of Universal Biography," was the first to introduce arsenic into the practice of dental surgery, about 1834, since which time, wherever a dentist practices his profession in any part of the world, arsenic has been used for destroying nerves in the teeth, and without further harm than I have here related. It has been a boon to suffering jaws hardly second to anæsthesia in general surgery. It has given reputation to dentists, who but for it would forever have remained in professional oblivion. It has preserved to the animal economy tens of thousands of teeth, which are useful to their owners, and are promoting their chief end and intention, as the first great aids to the digestive organs.

19TH ANNUAL SESSION

OF THE

AMERICAN DENTAL ASSOCIATION,

HELD AT NIAGARA FALLS, AUG. 5TH, 6TH, 7TH AND 8TH, 1879.

REPORT OF SECTIONS.

SECTION I.—*Continued.*

DR. G. B. MACDONALD: Dr. Rehwinkle informs us that in working metal—gold or silver—he was annoyed by his plates warping, and he thought the cause was that the alloys were not properly made, and that by melting them over two or three times they were more thoroughly mixed. In my practice I had considerable trouble in warping, and I found, that the cause of metal plates warping was, first, in having too much alloy either in silver or gold, and second, in using too large quantities of solder. In making silver plates I found it was better to have pure silver and no alloy at all. The more the plate approached purity, the less it would warp or spring. I found 22 carat gold was too soft to make plates of, it would bend. I was thought to make plates of 18 carat. In many cases I had trouble in warping. Experience taught me the trouble was in having too much alloy as well as solder. For many years I made my plates from 18 carat gold and I had no trouble from warping; and I never recollect the case that bent. I would like to describe a little appliance that I saw recently. It is of a man who was a dentist forty years ago, but who is not aware that dentistry has made any progress during that time. As he operated forty years ago, so he operates now, and still in calling upon the gentleman, I saw a little appliance that completely remedied a difficulty I had met with in swedging up plates—the lead die giving out—and it was a little arrangement of cast iron in which he cast his lead die when swedging his metal plates. In that way that trouble was entirely remedied. I used to make several dies, and when one went down I used a new one. I learned something, however, by calling in upon that antiquated dentist.

Dr. C. S. Stockton: I wish to say a few words in regard to these lead dies Dr. Stellwagen has spoken about. I am acquainted with that mode of working; which is to attach the plaster model to a screw, suspending it in an iron case, and making the counter die from the plaster mold and then running the die into the counter die; then screwing the dies together with the plate between them: it does very nicely. But after everything is done with the screw that it can do, then you want one or two sharp, quick, hard blows to send the thing home. I was greatly surprised at Dr. Rehwinkle's not knowing the reason of his plates warping. After melting it two or three times over, of course, his plate was better; the alloy had been melted out.

I intended to have said before, and I say now: In making artificial dentures, especially for the lower jaws, if you have good roots—better still if you have teeth—if there is only one left, save it by all means; if there are two, so much the better. But, as I said before, if there is only one, and not a tooth even, if you have got a good root do all you can to save it; place upon it a solid crown in the best way you know how, and it is worth hundreds of dollars to the wearer in steadying and supporting his artificial denture. Save it almost as you would the apple of your eye. Remember this, you are making artificial dentures for creatures like yourself; if *you* had to use them you would save the root every time. Remember that you want to do the same kind of work for your patients that you would want them to do for you; and I tell you it is a good rule not only in life but in dentistry also: "Do unto others as you would they should do to you."

Dr C. J. Essig: Between different metals, as for instance between tin and platinum, or between silver and platinum, and between silver and copper, the tendency to separate is great after a certain temperature, the copper will fall away from the silver and form a distinct alloy of itself; sometimes this is perceptible to the eye. Of course this would be a good reason for the altering of the plate, because where the proportion of copper is greater than it should be oxydation would take place to too great an extent, and it would be likely to warp in a high temperature.

I also wanted to refer to the process that Dr. Stellwagen speaks of in his remarks. Any one who wants to test the relative efficiency of percussive and persistent force, can do so by attempting to form a plate out of some refractory alloy such as platinum alloyed with irridium, and it will be found impossible to form such a plate without the use of percussive force. All of such alloys are exceedingly hard and elastic, so much so that it is impossible to swedge a plate of platina-irridium by the usual means. It is only effected by percussive force and the use of a zinc counter-die.

Dr. T. C. Stellwagen: The getting of the plate down to that point where a single blow or two makes it exactly right, is at least the work of the screw, and I doubt if these gentlemen have ever seen such adaptation of plates as is gained by this process. Some of the most difficult cases, where there were very deep indentations, or very prominent alveola ridges in the lower jaw, or where a few teeth were remaining, require the forcing of the plate down into these deep places, and at the same time to have a neat and perfect adaptation around the necks of the teeth, etc. One case that looked to be very difficult, was the making of a saddle of silver to cover three of the front teeth, for a fulcrum in drawing down a broken tooth, as was recommended by the late Prof. Barker, of Philadelphia. This was particularly remarkable since the plate was of silver, and hence not easily adapted. But the result was satisfactory.

Dr. J. N. Crouse: There is another matter in mechanical dentistry that has not been spoken of here, and that is the setting of artificial crowns as introduced through this part of the country by Dr. Richmond, of California. I have been very much surprised in examining this to see how beautifully they work. Though very much prejudiced against driving gold crowns into roots, from what I have seen of it there is very little objection to it. I had the pleasure a few days ago, of examining an operation of that kind where a gentleman had placed two gold crowns to front teeth, and to one of those had attached an artificial tooth, where there was only a root, and it was working beautifully; the root supporting the gold crown and tooth attached. I speak of this not from any experience I have had personally, but in the hope of profiting by the experience of other gentlemen.

Dr. J. Taft: I desire at all times when it is practicable, to raise my voice against the indiscriminate extraction of teeth and roots, and to indorse what Dr. Atkinson said in reference to that matter. And I do wish there could be some method arranged, some law established, if you please, that would arrest the wholesale slaughter of teeth that everywhere, in every city, at least, and many other places prevails to such an alarming extent. This practice came in like that evil science, the indiscriminate use of anæsthetics. In every city you know, there are places where they make a business of the administration of anæsthetics and removing teeth —*and they do make a business of it.* They remove all the teeth they are requested to remove, and a great many they are not requested to remove (applause). It is the practice to send to these places to get teeth for the use of students, and in going to their box where there would be a bushel or two, and in gathering up a gallon or two of these, there were found not more than one in fifteen or twenty that were merely roots of teeth—eighteen out of twenty were *teeth*, and such teeth as dentists were in the habit daily of saving and keeping for years and years—just such teeth as many of you have treated ten or twenty years, and are to-day standing and serving all the purposes of teeth. The large majority of these teeth will be found to be just such teeth as I have represented. Now I wish there could be some way of arresting this. If all cities that are enacting laws against criminals, could bring them to bear with a ton weight upon such cases, I would be glad. Every man who practices the indiscriminate extraction of teeth is a criminal (applause). I looked in about two gallons of teeth a student got for us some time since, expecting to find gold. I did not find any. These fillings are taken out, and the gold is kept and sold, and that is a source of revenue to these men.

Now, then, in reference to another matter that Dr. Atkinson has spoken about, and that is the preservation of roots of teeth. Now, I think, in the extraction of teeth, and even in the extraction of roots of teeth that can be made useful the dentist should be placed upon the same plane as the surgeon, and it should be no longer lawful for him to remove an organ from the mouth that can be made useful. Now, what would we think of the surgeon who should take off every finger or every foot that perhaps might have inflammation or abscess, and throw it in a box and point to them as an evidence of his success in his business. Just as much sense in that as in taking out all the teeth they are permitted to take out, and pointing to them as evidences of their business (applause). So now all roots that can be retained in the mouth, and made serviceable and useful, and kept in a state free from pain and disease, will be useful to the patient. The root must be put in a condition of health, just as any tooth that is diseased should be treated, and for the same purpose. The root should have removed from it everything that would be against its health. Everything in it and about it should be removed, and such a condition established as would secure its well being. I have treated the roots of teeth twenty years or more, and they are to-day worn just as comfortably as they were at first; and so I hesitate to take out roots of teeth. And I don't take out teeth when persons come and ask to have them taken out, just because they are aching, and there is inflammation of the periosteum, or anything of the kind. Go to work and treat these cases; and whether or not plates are to be put in over these roots, it is better to keep them where they belong, and keep them in a state of health. It saves mutilation of the face that almost always occurs when roots are taken away.

Now there are various ways of supplying crowns. One method was referred to a moment ago of putting on gold crowns; and I was very well pleased with crowns that have been placed upon roots in our own practice, and without irritation to the roots at all. I remember now two or three roots that were somewhat loose at the time we undertook them, which are more firmly fixed in the socket than at the time the crown was put upon them. Another way has been devised and adopted by Dr. Peabody to place an artificial crown upon roots in the mouth, and made very serviceable indeed. It is simply a tooth with a platinum tube through it that would receive an eighteen or twenty gauge rod; to dress down the root nicely, just as though setting an ordinary crown; clean out the root entirely, and if it is a first or second bicuspid, for example, clean out the canals and enlarge them somewhat, next a metal staple is made of platinum or gold, and placed in the root, protruding beyond the dressed surface of the root, and on that a little solder is placed which retains it directly upon the top of the root. This little staple is just dropped in, and about it may be packed a little gold or amalgam, and it may be filled up almost full, and allowed to remain in that condition with just a little wax over it for about twelve hours until firmly set in position. Next remove the wax, the crown having been previously fitted; then put in a little more amalgam, and then set the crown upon that. Then put a nut upon the other end of the rod and screw down into the crown. This forces it down into its position, and makes a perfect union, and it is simply drawn down by the nut, and this is filled upon with gold, and the operation is complete. This method is applicable upon the first and second molars and bicuspids and incisors. Of course if there was a simple canal only that rod would be quite sufficient. Dr. Peabody has placed a number of these in the mouth, and they are eminently successful, there having been but one failure in all the teeth he has operated upon in that way since he has adopted it.

I think it important that all roots of teeth should be saved so far as possible. Never take out the root of a tooth except upon the same principle that you would cut off a hand.

Dr. McDonald: I rise to indorse all that Dr. Atkinson says about saving teeth, and to relate a little incident that fell under my observation some five years ago. I went into an institute where the business was to extract teeth, and saw the gentleman who was doing the business on that day. I saw eighty-one teeth extracted. I was on a voyage of discovery, and I went there to satisfy myself. I went there in disguise. I got acquainted with the gentleman. On that day I saw twenty-one patients operated upon, eighty-one teeth extracted, and $104 taken in. I stood right over the chair, and it is modest to say that nine-tenths of those teeth a very ordinary dentist to-day would save. I remember particularly a young gentleman twenty-one years of age who was a perfect man in every particular of his organization. He had three roots in the anterior portion of his jaw that one might be excused for extracting. He came there to have them extracted, and the operator said: "young man, you had better have all those teeth out, for if you have a plate made over those roots, it will be but a short time before you will have to have these taken out and another plate made." It was done, but for fifty dollars at that time I would not have had those teeth taken out of my mouth. These operators receive twenty-five per cent; he made a little over twenty-five dollars that day. What can be done to stop these frauds? One thing we can do. When graduates of dental colleges set themselves up in this sort of business. shall we hold out the right hand of fellowship to these men when we know that they are maltreating teeth every day? Dr. Taft calls them criminals. and yet we meet these gentlemen at dental dinners and elsewhere and extend to them the right hand of fellowship. I feel the first thing we can do is to ignore all such men. I don't care who he is, if we find him stepping out of his college. and going into this nefarious business. don't shake hands with him; pass him by. That is the first thing for us to do.

Dr. W. C. Klump: I arise in the first place to indorse all that has been said in regard to the slaughtering of teeth. and to say that it is not confined to large cities, but we find it also in small towns. There ought to be some way to stop it. Now. I want to know, in those cities where they have a good and sufficient legislation. and where the profession itself is freely recognized. why it is not possible that the profession themselves should prosecute such a malpractice? Are they not just as guilty themselves. if they overlook it? Now why countenance these things—these dental butcher shops? When we are by ourselves we can preach our dental virtue. but when we get home just as likely as not we will send a patient to these very places—some of us will. And I know it is a very common thing for a great many dentists to refer patients who want to have teeth extracted. to these people. Now how much better are such dentists than if they did the work in their own offices. I think the men who refer their patients to these places are no better than the persons who so practice themselves. But there is something that can be done in the way of prosecuting these men for malpractice. I know in my own city a case where a lady had trouble with two bicuspids. one on each side. and she went to one of these places to have them removed. She was put under the influence of gas. and when she became conscious the operator had begun on the first bicuspid and gone all the way around that side. and commenced on the other. Now that man was guilty of malpractice. If I had done my duty I would have strongly advised her to sue him for malpractice. The great difficulty is. if you sue you have your costs to pay. They are not responsible: such persons never are. But some way ought to be devised to put a stop to this practice. Wholesale denunciations of these things don't amount to anything.

Dr. Hunter : I indorse what has been said about the indiscriminate extraction of teeth, and all concerning the saving of teeth, that can be said. I don't rise to add anything to this, but to advise doing something about it, and the question is what is to be done. I called on Dr. Robinson, of Jackson, and inquired of him how many dentists there are in Jackson. "Well," he said, "if you call me one, there are five, but there are twelve in Jackson that call themselves dentists." People there are in the habit of going to the dentists and dictating to them what they shall do, just as you will go to a mechanic of any description, and dictate to him what you will have done, and if you tell them that it is not the proper thing to do, and you cannot do it, they will say, "Well, I will go to somebody who will do it." You reply, "Well, that is the privilege you have, but I won't do it." You recommend prosecuting these people for malpractice ; but how are you going to do it? It was for the purpose of information that I have come to this dental convention, and I have been greatly benefited by attending this and our State Dental Association, and I hope to be benefited in this direction. I find there is a great deal of what you call malpractice, and I find myself very much puzzled what to do, because I cannot control the people. Now, such men as Dr. Atkinson, and Dr. Taft, and other men, who are in large cities, and have extensive practices, have their patients educated, and can choose them, and control these patients, and do just what they please with them. But there is another class who cannot do this ; they cannot get their patients to follow advice. And this is the case to a greater extent in small country towns. Of course there are a great many cases in which I can control my patients, and then again there are cases I cannot control,. and, perhaps, I can do better for them than to let them go to some one else. Take a case that I had. A young man fifteen years old came into my office one evening with a central incisor decayed, but not very badly. I advised him not to have it extracted, and gave him my reasons for it, and talked to him as a person would who was interested in his well-being ; and, at last, I told him to go home and tell his father what I said. About two weeks after he came to me and told me he had concluded to have that tooth extracted. I told him I had concluded not to extract it. He asked me why not? "Well," said I, "because I would have no right to extract it any more than a surgeon would have to amputate your hand because it was sore." "Well," said he, "then I will go to some one who will extract it." And that is the way they will answer us, and what can we do about it?

Dr. G. R. THOMAS: I do not rise to make any extended remarks on this subject of Mechanical Dentistry, and I am free to say that it is a mixed question, and one that cannot be discussed in one session, nor in two; nor yet in one year, or even in two years. I have advocated for some time, as perhaps some of you know, that the only thing we can do about it is to cut ourselves off from this business of making artificial teeth. There is this much about it, that mechanical dentistry has got that hold upon the people at large, that all the discussions that can be had in bodies of this kind cannot effect anything at all: the men are not here that are doing this kind of work; they are not going to read the reports of this association. If they did read these denunciations, it would not make any difference with them. And what can we do about it? Dr. Taft says bring them up before the law and prosecute them. Where would we find the jury that could decide whether the tooth extracted was fit to be extracted or not: the teeth are not preserved, they are destroyed, and so nothing can be done in that way. But how are you going to avoid it? What are you going to do about it? I know nothing to do but this, that we are to hold out to the people at large, that our business is the saving of natural teeth, and that alone. And if we find it necessary to put in artificial ones, it may be well if we know how to do it, but not to hold out that inducement. One gentleman has said that we fraternize with these men; and so we do more or less, and so we must; and I acknowledge them in a measure as dentists. Every city has these shops, and every country town is infested with these men that practice this nefarious business, and it seems to me this matter of legislation does not accomplish the end sought after.

The matter of gold crowns has been spoken of, on roots. Now, more can be done in that direction than many of us suppose. This mode of putting on gold crowns that was introduced by Dr. Richmond is certainly a very excellent one. I had the good fortune to have one put on a third molar in my own mouth. It had given me so much trouble that I had been advised many times to have it extracted; but Dr. Richmond persuaded me to have one of these crowns put on, and I must say it has more than satisfied me, because now I know no difference between it and my own natural teeth that are healthy. I have put on several of those gold crowns, and they have more than met my greatest desires in the matter. And another process has been spoken of by Dr. Taft, and it seems to me if we give our attention to this matter of supplying the teeth as much as is necessary in some such way as this, we can lessen the demand for artificial teeth, and that is what we have got to do, as we cannot get hold of these men in any other way.

Dr. E. A. Bogue : There has been an effort made to indoctrinate the people into those things which go to make up a perfect denture, but I will tell you another thing I will do, and if I am in error I will stand corrected. I will send a patient, who comes to me determined to have his teeth extracted, to one of these dental slaughter-houses, as you call them, and he will go into the chair with my written directions what shall be done, and they will be followed, because that patient is under my hands.

These men with their practices are just as unworthy as they have been represented here, but yet that very unworthy practice has given them a facility which we, who do not extract teeth, are without. I cannot extract teeth, I think, as well as I could fifteen years ago. I really believe that no man practicing extraction for a living will disobey your instructions many times if he knows you mean business, and I believe a large share of the difficulty comes from our own negligence in that matter.

Dr. Atkinson : I bear my testimony that I have yet to learn of the first man who gives anæsthetics, who is a good extractor of teeth.

Dr. Bogue : I hope Dr. Atkinson will never again send, or allow, if he can help it, one of his patients to go into one of the Colton Institutes. After seeing the effects of the work done there I have not sent another one. I take another class of people altogether for my extracting.

Dr. G. J. Friedrichs : I think the whole trouble lies in want of appreciation on the part of our patients themselves, and I will illustrate it by telling you a fact. I have a friend who is practicing in Neufchatelle, France. One day a patient came to him, who was suffering from a severe case of periostitis. When the doctor saw the case, he set him down in the chair, and concluded to pull the tooth ; but as soon as the patients saw him bring the forceps he said, "What does that mean?" The doctor said, "I will have to extract your tooth." "No, sir," said the patient ; "that tooth is worth 500 francs to me." And so the doctor had to lay his forceps down. Now, if our patients appreciated the value of their teeth this way we could not get them to have a tooth pulled.

Adjourned to 10 o'clock Wednesday morning.

THIRD QUARTERLY MEETING OF THE SECOND DISTRICT DENTAL SOCIETY OF THE STATE OF NEW YORK—HELD OCTOBER 9TH, 1879, AT THE OFFICE OF DR. A. N. CHAPMAN, BROOKLYN, N. Y.

Incidents of Office Practice was passed without notice, and the subject for the evening discussion was made general, and to include anything of interest to the dental profession. Under this head the remarks took the form of debate upon the late case of alleged arsenical poisoning produced by placing arsenic in the tooth of Mr. Gardiner by a dentist, and from the effects of which he is said to have died.

Upon this subject Dr. O. E. Hill spoke as follows: When Dr. C. A. Marvin saw the tooth, as I understand it, it was simply a case of dead pulp, and in the first stages of inflammatory action around the roots of the tooth. The tooth was the least bit sore to the touch in pressing upon it. He saw no inflammation at the margin of the gum, nor anything to indicate that arsenic or any other escharotic had touched it. You saw in the papers how he treated it.

I think Dr. Marvin made a similar statement to Dr. Jarvie, and if I have been wrong in any sense he will please correct me.

Dr. WM. JARVIE, Jr. read the statement made by Dr. Marvin in the Brooklyn "Eagle," of Oct. 8th, 1879, and then spoke as follows: I would say, in going into further particulars, that Dr. Marvin told me he found the tooth in just the condition Dr. Hill describes—filled with cotton, and covered with a piece of cork. He did not probe the roots at all, but wiped out the cavity with creosote, and filled lightly with cotton; that was all he did. Dr. Marvin stated also that there was not the least evidence to him that there had been any arsenic in the tooth, in fact, he felt confident there had not been any arsenic in the tooth recently.

Dr. O. E. HILL: Dr. Bronson just informs me of a statement which appeared in the "Tribune" this morning, and which I have not seen. I should be glad if he would give us the benefit of it.

Dr. W. A. BRONSON: I am a daily reader of the "Tribune," but to-day I did not have time to read it myself, but I was told there was a statement from Dr. Waters in it. In that statement there was a positive assertion that he had not used arsenic for twenty years, and did not have it in his house at all. That the application to this pulp was nitrate of silver, and he thinks the gentleman called on him a short time after he made the application of nitrate of silver, and he changed the dressing.

Dr. C. E. **Francis** : My impression is that the physicians who were called in have both come to the conclusion that there was no arsenic used. And also that the coroner had stated that he would not have the body exhumed, and did not believe it was a case of arsenical poisoning. It seems to me that the whole thing had passed from the minds of these physicians. The first I heard of this case a lady came into my office, stating she had the toothache. She had been traveling in Europe for some years. In one of her teeth was a guttapercha filling. She said the tooth was paining her. I removed the filling and found it was a case of peridontitis, and applied carbolic acid. The first thing she said was, "Don't put arsenic in my tooth." She said, "Have you seen the morning paper?" I said, "No, I have not." She said, "There was a case of poisoning by the use of arsenic which had been put into the tooth to stop toothache." I told her I did not believe any such statement as that, and it did not sound like truth at all. I finally looked into the paper and saw the statement. I have had several patients ask me if dentists were in the habit of using arsenic in the teeth, and if patients were injured by it? To-day a gentleman came into the office and said he had heard a new theory ; that he did not believe it was arsenic, but the instrument used had been poisoned. I told him I did not believe the instrument in the hands of the dentist had been poisoned.

I did not believe from the very first that it was arsenical poisoning, and the article I read in the "Tribune" this morning confirmed my belief.

Dr. **Wm. Jaryie, Jr.** : Dr. Guy, the attending physician, in giving the death certificate said nothing about arsenical poisoning, and probably never would if this matter had not been stirred up by Mr. Gardiner's friends, who seemed to think that some one was to blame, and that some one should be punished for it, and they evidently went for his attending physician, who just as evidently attempted to shift the responsibility, and throw it upon the dentist. We have statements made by gentlemen, in whom we have implicit confidence ; and there is more than their word to make us believe their statement. The condition of the tooth would not indicate the use of arsenic. Dr. Marvin stated that when the gentleman applied to him, the pulp chamber was empty, and that he had just come from Dr. Waters in Boston. Neither Dr. Waters, nor any other intelligent man would put arsenical preparations in a tooth, in which the pulp was dead. The tooth was apparently in the incipient stages of inflammation, and he presumed that the removal of the piece of cotton would relieve the gentleman. Dr. Guy, in support of his theory, states that Dr. Richardson and Dr. Helmuth coincided with him. Dr. Richardson told a friend of mine this morning that he did not do anything of the kind; that he never said it was a case of arsenical poisoning, and that he saw nothing to make him believe it was such. He examined the case, and gave his advice.

Dr. Helmuth, of New York, I believe, stated the same thing in the *Tribune* this morning. So that it seems to me that if there *was* arsenical poisoning it was not caused by the treatment received at the hands of any dentist. And were the local symptoms anything like arsenical poisoning? The attending physician told us that when he saw him the face was swollen, the skin being distended apparently to the utmost limits, and was greatly discolored. Now, in any of the cases of local trouble I have seen from the use of arsenic, there were no such symptoms as these. What was Dr. Guy's treatment of the case? He has been very anxious to find out the treatment that the case received at the hands of the various dentists, and has been, evidently, just as careful to conceal his own treatment. He has not given it to the public. I believe he has given privately what his treatment was to a certain extent. It was just the reverse of what it would have been by any intelligent dentist. So it seems to me that this case is one of terrible malignancy which, probably, under the most skillful treatment, would not have resulted in any other way. We hear of various malignant diseases that would run the same course that this did. But I have not seen anything at all to make me believe that arsenic had anything to do with the case, or that the treatment of the tooth has had anything to do with it.

FRANK ABBOTT, M. D.: I feel very much hurt over this article which has appeared in the *Times*, and would like to explain it. At half-past four o'clock on Monday, 6th October, when I arrived at the College to my lecture, the reporter was there, and commenced talking upon the subject of the Gardiner case in Brooklyn, and asked my opinion in reference to it. I said I had no opinion to give, as I knew nothing about the case at all. I further told him that I had no time to talk with him upon the subject as my lecture hour had arrived, and I would be occupied an hour. He then asked if I would have any time after my lecture. I said. No; as I must hurry home to my dinner at six o'clock. Then he says, "I will come and walk or ride up with you, and talk the matter over." I said, "Very well, if you choose to do that, I will talk with you on the way up. But I have nothing to say in reference to this case, because I know nothing about it. I would not express an opinion in reference to it. I know none of these gentlemen in Brooklyn who are said to have had the case in charge, and who have pronounced it a case of arsenical poisoning." "Well," he said, "It is not that case particularly I want to know about, but it is the use of arsenic." "Very good, I can give you what is done with arsenic as a general thing." I then left him and went to my lecture. After the lecture, I met him on the street, and we walked up to the corner of 40th street and Madison Ave., together. The conversation all the way was upon this matter of arsenic and its effects. And he was very persistent in his questions, all the way up, in reference to the action of arsenic; wanting to know if it would do this, and do that; if it would effect such a thing, and effect such a thing. Now, if I may be allowed, I would like to read in this article what I am reported to have said, and follow it up with what I really did say. I am reported as saying, "Those, who too easily deny that Mr. Gardiner died from the effects of arsenic placed in his tooth, make this mistake: they fail to distinguish between arsenical poisoning through the stomach and arsenical poisoning by direct contact with the blood."

The question put to me was, "How does arsenic affect the system when placed in the mouth, as compared with its effects when taken into the stomach?" I stated to him that the effects in the mouth were altogether local, unless the quantity placed there was very large; in that case absorption might take place so that we would get some of the symptoms we usually find when taken into the stomach. But the effect of arsenic, as a general thing, was directly upon the surface with which it came in contact, penetrating under the surface just so far as the quantity and strength of the material would permit. Then, if absorption took place, as it did sometimes, we would get some of the symptoms of arsenical poisoning through the stomach, such as extreme nausea, retching, inability to retain anything on the stomach—occasionally diarrhœa—in fact, nearly all the symptoms, with the exception of acute gastritis. Those we might get from arsenic as placed locally. Then I am made to say, "It is the universal practice with dentists to place arsenic in the teeth to kill nerves." I said they did not do that—all of them. There are a great many dentists who do not place arsenic in the teeth, and think it is a great sin and shame that it should be done. In fact, I don't place arsenic in teeth myself—have not done so twice in ten years. "It is taught in all dental colleges," he makes me say. The subject of dental teaching was not spoken of at all in that interview—not a word said about it one way or the other. Speaking of the manner of introducing arsenic into teeth for the purpose of destroying pulps, he makes me say, "Any operator is liable to dip too deeply, and even to lift more than enough of the poison to kill the strongest man, if it should get to his blood." The amount of tissue destroyed would depend entirely upon the amount of arsenic placed in contact with, and held upon the gum. Nothing whatever was said about destroying life, from the application of arsenic to a tooth to destroy the pulp, in this connection. What I did say was this: "That if the arsenic was carelessly put into a tooth and came out, and came in contact with the periosteum surrounding the root of the tooth, it would destroy the gum, periosteum and bone as far as the strength of the material would admit—whether it be a small particle or large amount, it would destroy in proportion to the amount of poison there was there. He makes me say, in another place, "I have known a great many instances of arsenical poisoning from treatment of the teeth, but in all of them proper treatment in time saved the patient, and in most of them there was not enough arsenic to prove fatal." What I did say, was this: "I have seen a great many cases of arsenical poisoning from the treatment of the teeth, but in none of them was there arsenic enough to produce anything but local disturbances." Then, again, he makes me say: "In all of these cases, so far as they went, the symptoms were about the same as the symptoms in the Gardiner case." Now, what I said in that connection was, that *if the statements in the paper be correct*, that the man's mouth and face were black, and that the parts were sloughing off, then the symptoms were those of arsenical poisoning. In another place he makes me say this: "I would say this, all the symptoms in Gardner's case, but two, go to show death by arsenical poisoning." Now, what I did say, was this: "From what I learn in conversation with you, I should judge that Mr. Gardiner had died from the effects of an alveola abscess." Then he says: "What symptoms are there of alveola abscess?" Said I: "You have just told me that the man's face—or as you call it, gland—was swollen way down upon his neck—you might say upon his shoulder; that is one symptom of an alveola abscess. You have just told me again that his jaw was very rigid and could not be moved one way or another; that is another symptom of alveola abscess. You have said, or it was published, that

Dr. Lewis opened a little pustule in the man's mouth which discharged a very putrid fluid. These symptoms are all of them prominent symptoms pointing to alveola abscess." Then, he says: "Could this abscess not have been accelerated by the arsenic?" I said, "No; arsenic could not have anything to do whatever with the origin or development or 'acceleration,' if you choose, of an alveola abscess. Now, I want to make one statement more to you before I leave you, and that is, I am strongly impressed with the idea that that man died from an alveola abscess improperly treated; and my opinion is, if he had kept with Dr. Marvin, done as he told him, and allowed him to treat his tooth as he wanted to, he would have been a live man to-day.

C. F. W. Bodecker, D. D. S., M. D. S.: On Monday, October 6th, about 5 o'clock, I was in the office of Dr. Northrop, who asked me if I had heard about the case of arsenical poisoning, described in the *Times* this morning. To which I replied that I had not. When I returned home there was awaiting for me a reporter from the *Times*, requesting an interview on this subject, saying: "I suppose you have read about the case of arsenical poisoning, which happened in Brooklyn? I am investigating it, and would like to have your opinion about it." Answer: "I don't know anything about it; I have not read the *Times* of this morning." The reporter replied: "That does not make any difference. I will tell you all about it." He began: "A Mr. Gardiner, of Boston, went to a dentist in that city, who made an application of arsenic to one of his teeth to kill an aching nerve. The succeeding night the gentleman had to come to New York on business, and as he had obtained no relief, and was greatly troubled with pain, he went to a physician in Brooklyn, thinking that he had neuralgia. The physician, however, recognizing the trouble, sent the patient to Dr. C. A. Marvin, who has made an other application to the tooth, and dismissed the case. This was on Thursday. The following Sunday he again had terrible pain, so much so that his friends sent for Dr. Guy, a physician. When this gentleman saw the patient, he pronounced the trouble to be most unmistakably a case of arsenical poisoning, and treated it accordingly, but at the same time declared it to be hopeless. Dr. Guy then called in two other physicians, and both agreed with his diagnosis, stating that it was a clear case of arsenical poisoning, believing that it must have been from the arsenic the dentist in Boston had put into the tooth, probably in great quantity. Mr. Gardiner from this time grew worse and worse, so that when he died his head was almost separated from his body, and the spine was the only connection left. When Dr. Guy saw him first one side of his tongue was burnt black and curled up. The gum around the tooth, under the tongue, the cheek, and down his throat, was black from arsenic. After the slough came away from the cheek it was analyzed by a chemist, who found large quantities of arsenic in it." The reporter then questioned me: "'From these facts, don't you think that the death of Mr. Gardiner, who was, previous to that, an absolutely healthy man, was due to arsenical poisoning?" Answer: "I don't know. Why don't you go to Dr. Marvin, who is a first-class man, and ask him. He must have seen the effects of the arsenic if there were any." The reporter then replied, "that he had seen Dr. Marvin, who said that he treated the tooth in a scientific way, but will not say anything more about it.' He then asked what my opinion was concerning the use of arsenic? Answer: "I don't use it at all. I have seen some unpleasant results from it." "Well," the reporter said, "then you have seen cases of poisoning by arsenic, which has been used in teeth?"

To this I replied, "No; I have never seen that, but I have seen the gum and periosteum sloughed away, and sometimes a slight necrosis may result from the arsenic when it comes in contact with the gum. I have not used any arsenic for about three years, but when I have been obliged to to do so I have secured it in the tooth so that there was no possibility of its oozing out of the cavity. In teeth, where it had any chance to fall out, I would rather cap it with bone filling and drill it out again." The reporter then said: "I think you as well as Dr. Abbott are afraid to use arsenic, and will admit that there is some danger of poisoning?" My answer to this was: "In the hands of an experienced dentist there is no danger. Besides, the quantity of arsenic used to destroy a pulp, is so small, that it could not kill a man. I object to its use because it kills pulps." The reporter then told me that in Mr. Gardner's mouth a little pustule had been seen on the gum which opened and discharged some matter, and this makes Dr. F. D. Weisse think that the man died from an alveola abscess, asking me, "Is it possible that a man can die of such a simple trouble?" My reply was: "I have never seen nor heard of a case of death from an ordinary alveola abscess, unless there had been some other complication with it." The reporter then questioned further: "Might not the application of arsenic have induced the alveola abscess?" I said, "No: that is absolutely impossible. There is only one way in which arsenic *can* have anything to do with alveola abscess, and that is in killing the pulp, and from the irritation of this dead tissue it might be possible. The reporter then replied: "You see, the arsenic might have something to do with the alveola abscess." I answered: "I do not see it; a dead nerve might have the same consequence without the arsenic." The reporter then asked, if arsenic was used to cure an alveola abscess? or if the dentist in Boston could have been mistaken in his diagnosis? To this I replied: "Arsenic is never used under any other circumstances but in pulpitis, to destroy the pulp. Any dentist, with even a slight amount of knowledge of his profession, will be able to distinguish the difference between a forming alveola abscess and pulpitis. I am, therefore, of the opinion that if the dentist of Boston made an application of arsenic, there was at that time present only an aching nerve. The abscess must have formed later." The reporter then continued: "Now, supposing that dentist in Boston has put a large quantity of arsenic in Mr. Gardiner's tooth, and this came out into his mouth? Would not this have anything to do with his death? And besides, the arsenic has been found in the slough; is not this evidence of poisoning?" To this I replied: "It might have had something to do with it, but I cannot give a positive opinion about it as I have not seen the case." The reporter then left, and, after I had read the article in the *Times*, I saw that he had omitted several important points, evidencing that this case was nothing but a malignant form of alveola abscess. Two days after this, when I read the article in the paper, I saw I had been misrepresented or misunderstood by the reporter.

THE CASE OF GEORGE A. GARDINER.

BY C. A. MARVIN, D.D.S.

The horrible story of the death of this gentleman, attributed to poisoning by arsenic placed in a tooth to kill the nerve, has caused great excitement throughout the community, as well it might, and a wide spread alarm for which there is no foundation. Arsenic, in the form of arsenious acid, has been used more or less extensively for this purpose for forty years. It was introduced to the notice of the profession by Dr S. Spooner, of New York, in 1836, whose brother, a dentist in Montreal, is said to have been the first to employ it in dental practice. When used carefully, it has proved to be safe and efficacious, and has relieved an immense amount of human suffering; and when used without care, its injurious effect, when any has supervened, has been local and limited. Alveola abscesses are not of infrequent occurrence, but are traceable to an entirely different cause, as is well known. They are liable to occur under any dead tooth, whether the pulp of that tooth has died a natural death or has been destroyed by a corrosive or caustic agent. Great care is observed, therefore, to bring about a healthy condition of things before attempting to fill a tooth from which the pulp has been extirpated. All this is well known. Mr. Gardiner's case did not present any alarming, nor even any peculiar symptoms when I first saw it. It was simply a case of periosteal inflammation, accompanied by a slight, a very slight swelling of the gum. The tooth—a right lower molar—was sore to the touch, and was painful without being touched. Upon a casual examination, it was deemed best to remove the temporary filling, which might be the cause of irritation, and so give relief. This was done, the cavity cleansed, and an application of creosote made. The patient was then advised to return as quickly as possible to his dentist. The next I heard of the case was several days after, when the physician called and inquired what I knew about it, what treatment I had employed, and what I thought the former dentist had used? He then advanced the opinion that it was arsenical poisoning. I did not agree with him, and, when he described the man's condition, concluded that he was suffering from an alveola abscess. I did not see him. The next I heard, was from the sensational story of his death in the *Times*, October 6, some two weeks afterwards. That alarming history, taken from the lips of the two gentlemen whose names appear therein, with great regard for accuracy, so I am informed, was based on the positive assertion that the arsenic employed to destroy the nerve of the man's tooth was the certain cause of his death, and this went like lightning throughout the land, spreading terror, exciting indignation, causing distrust of a useful profession. The story was emphasized by severe editorials, and dentists and dentistry unjustly defamed. Dr. Waters, of Boston, has published a long article detailing the condition of the tooth, his treatment of it, and his apprehensions concerning it. He positively avers, that he used no arsenic. Now, I used none, therefore it follows that there could be no arsenical poisoning, and the cause of the gentleman's death must be looked for elsewhere.

In my judgment, Mr. Gardiner was not in a state of constitutional vigor. His skin had an unhealthy color ; there was a lack of firmness of texture, and a general appearance of atony about the tissues of his cheeks and neck, indicating easy and and rapid solution of the soft parts under the attack of any ulcerative affection.

The abscess, in its earliest incipiency, when I saw it, was allowed to go on unchecked for several days before medical skill was summoned. Its progress was phenomenally rapid ; its character unnaturally malignant. What might perhaps have yielded to thorough treatment at the first, soon became violent and uncontrollable ; complicated, undoubtedly, with constitutional ailment, it assumed new and alarming phases, was not recognized by the physician, and ran its own wild course swiftly to the fatal end. There is very little doubt that erysipelas joined with its malign force, and tissue and strength melted away before them like snow before a flame.

There is room for much speculation in connection with this case. There has been much. The most of it has been vain. Some things are fixed, however, and no assertions nor charges can shake them, with informed men.

One is, that arsenious acid, as employed by dentists, could never produce such a result. Its effect is totally different even when brought in contact with gum edges and process surfaces.

Another is, that alveola abscesses are not to be neglected nor tampered with. Although in themselves not usually nor necessarily fatal, they often do destroy the bony parts, causing suffering, the necessity of surgical operations, and permanent deformity. Especially do the diseases of the teeth demand immediate attention in patients who are suffering from any constitutional disease, which lowers the tone of the system, and reduces the power of resistance. Another is, that dental surgery can and does meet the wants of such cases, and has scores of cures to its credit.

Another is, and it is very gratifying to consider, that among competent men, notwithstanding many differences and much contradiction, there is at the bottom a unity of opinion on vital questions and governing principles, when once it is dragged to the surface and correctly reported.

AMERICAN NERVOUSNESS: ITS PHILOSOPHY AND TREATMENT.

BY GEORGE M. BEARD, M. D., NEW YORK.

An Address delivered before the Baltimore Medical and Surgical Society, Feb. 12,1879.

[CONTINUED.]

It is of supreme scientific and practical importance to be able to make a differential diagnosis between the symptoms of neurasthenia in its different forms and the symptoms of early stages of grave structural lesions of the brain, spinal chord, peripheral nerves. To make such a differential diagnosis is sometimes the severest test to which the neurologist can be brought, and one of the highest value for the happiness, the plans, and the whole future of his patient. The not being able to meet this test has been, and is now, in all countries as well as our own—particularly in the last twenty-five years—a cause of frequent errors in the advice—both hygienic and medical—given to patients; for both the prognosis and treatment of neurasthenia is oftentimes quite the opposite of the prognosis and treatment of incurable cerebral, spinal or peripheral nerve lesions. If we were compelled to be guided by isolated symptoms, it would be impossible, in many instances, for human skill to make such differential diagnosis between neurasthenia and some of the diseases that it simulates; for the symptoms, considered by themselves, are sometimes precisely the same, and of themselves alone would not point towards the solution of the problem. The tendency of neuropathology is not toward, but away from, the idea of single pathognomonic symptoms. It is by considering groups of symptoms in their relation to each other, and to the history of the case, that we make out in recent times, the diagnosis of ataxia, or of any of the different forms of spinal disease, or of hay fever. Whenever any of the different phases of professional cramps develop, such as of musicians, or writers, or painters, or telegraphers, or designers, or engravers, or artists, or barbers, or counters of money, there are single symptoms in any one of these diseases, that, in themselves, might mean rheumatism or neuralgia, or neuritis, or diseases of the joints or spine; and very often, indeed, this mistake in diagnosis is made in spite of all the literature and teachings upon this subject.

Neurasthenia is differentiated from organic disease, by taking into consideration these four elements: (1) The fluctuations and inconstancy of the symptoms; (2) heightened reflex action; (3) the existence of some certain special symptoms, wich will rarely be found in organic spinal disease—such, for example, as different forms of morbid fears which I have described, palmar hyperidrosis, excessive tenderness of the spinal cord, deficient thirst, abnormally active pupils, mental depression, extreme insomnia, morbid desire for stimulants and narcotics. In certain organic diseases, it is true, there may be heightened reflex action; but, as a rule, reflex action is diminished in organic or structural disease of the spinal cord. Closely analyzed, a large proportion of the symptoms of neurasthenia, as I have before described them, are of a reflex character coming from the stomach, or some part of the genital apparatus, or, if they are not reflex in their origin, are at least made worse by a reflex irritation. To know this fact, and to act upon it in the treatment of these cases, is indispensable for success. One may treat sweating hands and flushing face and various neuralgias and headache indifferently without any permanent effect, until we attack and destroy the cause, which is often found in some portion of the genital apparatus; (4) those in whom the nervous diathesis predominates, are likely to have functional nervous disease.

In regard to the prognosis in cases of this kind, this general statement is sustained by experience, viz.: All of these cases can be relieved; many of them can be absolutely or approximately cured; but in all cases time and patience are necessary to bring about these results. I have watched these cases for years after they have left off treatment, and I keep up correspondence with patients who have been under my care, and thus have an opportunity to know what the issue is. Patients of this kind live to a good old age—may attain even unusual longevity, and may have their best health during the latter part of their lives.

Our "sick headaches" almost always leave us between fifty and sixty, but, of course, sometimes earlier—about forty or before; and in this respect, sick headache is, I am persuaded, a type of a large number of functional nervous disturbances.

The results of treatment depend greatly on hygiene and therapeutics. These cases respond to treatment; they yield directly and positively to the influences of remedies. It has been the usual plan to manage cases of this sort, without making any special diagnosis, by what is called moral treatment, which, when scientifically employed, is mental therapeutics. This is a just and most potent means for controlling the disease, but is not to be used exclusively in these diseases any more than in any other disease: subjective treatment is merely an additional means of relief. In regard to the details of treatment, I will state but a few facts:

First comes *electricity* in its various modes of application—central, general and local. In the dosage, we are, in recent years, learning these four facts: 1. That it is sometimes best to use it in exceedingly small doses, mild currents and short applications. 2. That it is sometimes well to use a very strong and painful current. 3. That applications may be protracted for hours in succession. 4. That applications may be made much more frequently than is the general custom. These four propositions are not brought out in our text-books. I have not myself insisted upon them as I mean to do hereafter when I refer to this subject. They have been impressed upon my mind, especially of late, and are the direct results of experience with cases. These four propositions apply to nearly all our remedies. In truth, we are widening and deepening the system and range of our therapeutic forces by modifications of the quantity and quality and mode of administration. I have long taught that for spasmodic difficulties, like local sprains of muscles, convulsive tic, facial spasms, etc., very mild galvanic currents are preferable; but I have lately seen a case where very powerful and painful faradic currents, applied with the electric brush, or with the sponge, or both, and with as strong currents as could be borne, were more efficacious than the mild currents. Likewise in sciatica, and even other forms of neuralgia, painful currents that make a blister, or are at least very irritating to the skin, may succeed after mild applications have failed. An electro-puncture directly into the nerve itself will cure when the mild currents are powerless. In the treatment of a new case, and until we have learned the temperament of the patient, and the way he responds to electricity, it is proper always to employ mild currents, and for the same reason that it is always best to begin with a minimum dose of any remedy. But, when necessary, it is also well to test the full physiological effects of the remedy before giving up a case. I am convinced that in many cases electricity will not give extraordinary effects until we have produced the physiological effects upon the patient, such as soreness of the muscles, nervous irritation, sleeplessness, temporary accerbation of symptoms and the like. To begin treatment with the excitation of these symptoms, is unwise as a rule; very many persons are over-galvanized and over-faradized. Every case in this respect must be itself a study. I formerly believed that an application once a day was, to say the least, enough; but I now know from experience that applications twice a day, and, in some cases, applications quite prolonged are advantageous.

Many years ago, I pointed out the fact that there are eertain temperaments that do not bear electricity, or bear it very badly, and must be treated with mild currents, and with quite long intervals between the applications. Any new cases that come under our care may, for all we know, have this temperament. These propositions apply to all the other remedies of which I am to speak.

The ancients, you know, classed the divinities as major, minor—*Dii majores, Dii minores.* Similarly, neurotics may be divided into major and minor remedies. At the head of the major remedies—the *Jupiter omnipotens*—stands, without question, electricity: then come ergot, the bromides, arsenic, strychnine, oils and fats, counter irritation, cannebis indica, massage or systematized manipulations of the muscles, the use of dry heat and cold, hydro-therapeutics, the zinc preparations, belladonna, digitalis and iron.

Of these various remedies, *ergot* is especially worthy of note. Just how ergot acts in nervous diseases is not known, nor indeed are we likely to know in satisfactory detail the action of any remedy. That ergot contracts the blood-vessels, and thus is useful in local congestion of the brain and spinal cord, is one of the clearly established facts in physiology, and is one of the few definite, solid foundations for therapeutics but that this effect on the blood-vessels is all that there is in ergot in its action on the body, no philosophical student of nervous diseases would claim. Indeed, this contraction of the blood-vessels must be a result as well as a cause. Behind and beyond all this there is an influence which we cannot analyze. One advantage of ergot is the immediateness of its effects, particulary in spinal hyperæmia. The particular doses of ergot need important modifications in special cases. In some instances, very large quantities of ergotine may be given with benefit and without any harm that I can trace. I give ergot for immediate effects, for sick headaches, and for headaches of other kinds, and or long continued action in spermatorrhœa and various other conditions.

Another of these *Dii majores* of neuro-therapeutics is *arsenic* in its different forms. I use, not only Fowler's solution, but DeVerlangan' , with also the English preparation of the chloro-phosphide. Arsenic is [illegible] ffects of which are not, as a rule, felt at once. It needs to be kept up—to be persevered with for many weeks, oftentimes for many months. In some cases, no good comes until the physiological effects have been produced. The great power of arsenic for immediate as well as present effects, has been recently impressed upon me by a very remarkable case. A well known physician, of New York, was under my care for severe neurosi [illegible] the stomach, attended with vomiting of all of his food. Though he ate great quantities, he was growing thin and feeble, and he rebelled against nearly every treatment that had been suggested, or, at least, everything that I gave soon lost its effect. I urged him to use arsenic in small doses; at first he was somewhat averse [illegible] made up his mind to go to Europe. For a number of months I did not see him, and supposed he had gone to Europe. A short time since he came to my office and reported that he had tried the arsenic as I had recommended, and that the effect had been immediate, and, with but a slight relapse up to that time, permanent. He had gained in flesh, and regained his power to digest food. The remedy, indeed, acted with specific effect upon him.

Another remedy that perhaps will become, if it is not already, one of the major divinities of neurology, is *cannabis indica.* This remedy has a reputation of untrustworthiness and unreliability, both of preparation and of action. This reputation it is very fortunately losing. I find that for some conditions cannabis indica is one of the most trustworthy, most reliable and valuable of remedies. It is one of the drugs, by the proper use of which, the treatment of sick headache, for example, has been, within a few years, revolutionized, both for temporary relief at the beginning of an attack and during the attack, and, as a permanent cure, provided its action is maintained for weeks and months. It is one ot he most certain and convenient and agreeable of all the preparations used in neuro-therapeutics. Its quick and permanent influence over the symptoms of headache suggests its great value in other conditions allied to sick headache, or from which sick headache springs; and I am accustomed now to use it in the different phases or manifestations of neurasthenia and kindred affection. I use it sometimes alone; sometimes in combination with various tonics and sedatives.

Another remedy, not very widely known, but one the value of which is easily proved, is *citrate of caffeine.* Some years since, I called the attention of the profession to the value of this remedy in sick headache as a means of temporary relief at the beginning of an attack; very many physicians have obtained the same results. I now use this remedy for other symptoms beside sick headache, such as backache—what may be called headache in the back—and malise, general depression. A disadvantage of this remedy is, that it produces wakefulness, and, therefore, cannot be taken in the latter part of the day.

Allied to caffeine is *coca,* belonging, indeed, to the same family; indeed, it is the active principle of common coffee, tea, guarana and chocolate. The value of coca as a means of preserving the strength and abstaining from ordinary food, is erroneously exaggerated in the stock anecdotes that are flitting about our medical literature on this subject: but it has, without doubt, a special and most interesting sustaining and tonic power. It relieves the pain and uneasiness that follow over-exertion, and the peculiar distress that comes from sleepless nights. for which purpose, I may say, caffeine may also be used.

The *zinc* preparations, particularly the bromide, valerianate and oxide are sedatives of very great value in various neurasthenias, and I use them with great freedom. I gave once the zinc combination, including the bromide, the valerianate, the phosphide and the oxide, to a physician who consulted me about a year ago for neurasthenia, resulting from over work in his profession. In a few weeks he reported himself to me to express his gratitude and to testify to the great value of the remedy as a hypnotic as well as a sedative.

Duboisia, the new remedy from Australia, is likely to take a minor if not a major place among the resources of the neurologist. Its effect is somewhat like that of atropine, but yet not entirely like it ; and, for the symptom of hyperdrosis, seems to be more effective according to experiments that I have made with it.

Cimici fugin is a remedy, the value of which, in choreic conditions is undeniable ; and I am persuaded that its use need not be restricted to those conditions.

There are three other remedies which I use considerably, particularly in renal and bladder complications, and genito-urinal disturbances, viz., the *trailing arbutus*, *eucalyptus*, and *hydrastis*. I believe that these remedies, which I often give in combination, have a tonic power and are of service even when there is no genito-urinal complication. *Damiana* is a remedy which appears to have a general tonic power in a certain special action upon the lower part of the spinal cord, although I have not yet succeeded in obtaining from it the speedy and immediate effect that has been claimed for it. I use it in combination with other remedies.

Thus far I have spoken mostly of new and unfamiliar remedies ; the old medicines. however, must not be forgotten. Much that was valuable in our medication, is as good now as it ever was. When our fathers were consulted for cases of this kind, they treated them, if they treated them at all, with something to act upon the bowels, as cathartics or something of that kind. In this way, they did give some transient relief. I frequently act on this principle, and occasionally administer cathartics to act upon the liver and the bowels. Counter-irritation is certainly a good thing, and cathartics produce counter-irritation of the bowels like a blister on the spine.

Strychnia is one of our older remedies, and I use it sometimes alone, but very frequently in combination with other remedies ; yet it cannot be used in all cases, for sometimes it has a depressing effect.

Opium, in small doses, is excellent for many phases of neurasthenia; and were it not for the danger of forming the opium habit, I should use it more frequently than I do.

Alcohol also, in the form of wine, particularly claret and Burgundy, is to be advised in some cases of this kind, but not recklessly, or without reference to the age, character and temperament of the patient. Alcohol is one of the best of our hypnotics in cases where the bromides fail to produce sleep. Where chloral causes severe headache next morning, claret wine, freely used, may produce satisfactory effects without any unpleasant after effects. I do not mention this as a general prescription, I simply say there are cases of which the physician must judge. It has the same objection, however, as opium—that its use may lead to inebriety. In the treatment of nervous cases, it is sometimes necessary to use all of these potent remedies in incredibly and absurdly small doses.

The *mineral acids* are likewise old remedies, but they are good remedies. Dilute nitro-muriatic acid, either alone or combined with the vegetable bitters, I use in different forms of nervous exhaustion, especially where the urine is overloaded, as it often is, with oxalates and urates.

Of *cod-liver oil*, I may say that it probably does more for the nervous than it does for the consumptive. Oil and fats, like cream and butter, are brain food, and if used judiciously, as the stomach can bear them, act both as food and as medicine. The oil I use generally in the form of emulsion, and I use it with great freedom.

Of *phosphates*, this can be said: that they belong to the list of overpraised and over used remedies. There is a fashion for phosphates just now, and when men become neurasthenic, they think they are on the road to health if they take some of the phosphates or phosphites. Now, these phosphates and phosphoruses and phosphites, are good remedies in nervous troubles; but if they had anything like the specific power claimed for them, there would be little need for treating these cases; most of the patients that I see have taken them in abundance. All these stock remedies have a certain power which, in very many cases, they soon expend —they reach the limit of effect, beyond which they cannot be forced.

Another new remedy, or comparatively new to this country, is *koumiss* —fermented milk. The power of this remedy to produce sleep is very great, and very satisfactory. It is a means of nourishing the body without disturbing or even using the stomach to any very great degree. Koumiss is really digested milk, and is absorbed and taken up into the system without any strain upon the digestive apparatus. My friend, Dr. Brush, who has given attention to the study of this subject, tells me that from experiments which he made sometime since, it was pretty clearly proved that the alcohol which the koumiss contains was used up in the system and not eliminated. I am persuaded that the use of koumiss in the future is to be very widely extended for all conditions where nutrition is difficult—not only in adults, but in children. The one disadvantage of koumiss in some cases—that it constipates the bowels—is to be met by laxatives.

Another very old remedy, but as good as it is old, where it is properly used, is counter-irritation, which I employ both in the form of *actual cautery*, and galvanic cautery, and very small blisters, so small and so arranged as to cause very little annoyance. Counter-irritation in the hands of those who really understand how to use it without abusing it, is one of the three or four major remedies of neuro-therapeutics.

There is among the people, and even in the profession, a prevalent notion that the application of the actual cautery is a very painful procedure. This false idea has been fostered with the public on account of the supposed sufferings of certain prominent persons, like Charles Sumner, and Clara Morris, the actress, from this treatment. The lectures of Brown Séquard, referring to this subject, assisted in confrming this impression, and the newspaper accounts, in every possible way, have stimulated and strengthened the belief that it requires the courage of a hero, to submit without etherization, to the operations of the actual cautery. The idea of fire is always troublesome to the human mind; the idea of hell is associated with infinite burning. All these factors together have made it difficult for physicians, in modern times especially, to resort to the use of the cautery as often as it might be well to do. The real scientific truth on this matter is, that the actual cautery, as it can be used, and is used by those who understand it, is not specially painful, even to the most delicate woman. The pain is in the idea of the thing—in the expectation, and not in the burning. Any one who has had a sensitive tooth filled, has suffered ten times more than one who has submitted to a cautery operation, if properly performed. I speak of this point particularly, because the cautery is an agent of such great therapeutical power. This mode of treatment, like the blisters already referred to, must be, and now can be, modified and adapted to the sensitive modern constitution. It is one of the great remedies that stands the test of time and large experience.

Hydro-therapeutics in the form of bags of hot and cold water, the Russian and Turkish baths, and alternate applications of hot and cold is, in skillful and judicious hands, a great remedy for functional nervous diseases. The difficulty is that men prescribe these things for themselves, and use them for themselves and by themselves, and often get evil when they might get good. Every remedy that is good for anything, may, when improperly applied, do harm ; but harm in these cases is not due to the remedy, but to the one who uses it.

It is impossible to speak of the treatment of this class of troubles without referring to the *bromides* of potassium, and sodium and lime and lithium. Bromides may now be classed among the old remedies. Their great value in epilepsy has long been known. They are not, however, so well understood in other nervous diseases of a functional character. The bromides may be used in large doses, frequently repeated until the powerful sedative effect is produced, even when there is no sleeplessness ; those who use the bromides in this way must know where to stop or to reduce the dose.

There are a few general principles of treatment of which I will speak. First of all, the proper use of *rest* and *work* in the treatment of nervous disease. About a month ago, a patient with ataxy came to me from a distant city in the West ; I said to him, "you have left behind you a better doctor than you can find here." He asked, "Who?" I said "*rest!*" I prescribed it for him, and put him to bed. He had been accustomed to take excessive exercise—at least, far more than was good. The next day, another gentleman came, also from a distant city of the West, with the history of a certain form of cerebrasthenia—brain exhaustion—without any myelasthenia, or spinal exhaustion—and of a type that would be benefited rather than injured by a degree of mental and physical activity. He had felt disheartened and thought there was little for him to do in this world. He was of about middle life, and I told him that he probably was no more than "half-way home" and so far as the disease was concerned, he might live and be active for thirty or forty years longer. When he returned, I said to him, "you have come a long distance to consult me, but you left at home a better physician than you can get here." He asked "Who?" I said "*work;* work I prescribe for you. Take that in connection with all your medicine and you will recover." These two cases make clear the opposite methods of treatment.

A second and general suggestion is, that of a stopping treatment or suspending it at times Suspending treatment has a positive effect upon the system. Oftentimes it makes a direct impression, which may be better than continuous treatment. A friend of mine, formerly a sea captain, states that when sleeping in his cabin at night, if the sentinel walking the deck above him stopped, it would always wake him. The sudden sensation of nervous activity, like a jar upon the nerves, aroused him from his slumber. I find that patients sometimes do better—make more decided progress—in these intervals of treatment than while the most active measures are being used. Patients sometimes imagine this a proof of the valuelessness of the medicines; but it is in reality a proof of their power. It has been said that success in life depends largely upon knowing just where to stop. In the practice of medicine, this maxim is certainly sound; and to know where to stop, to let up, to modify the treatment, is one of the best tests of medical skill.

The third general suggestion is, that in the treatment of nervous diseases, we should study with all our energy the psychology of our patients; we must make a diagnosis of the intellectual character as well as of the disease before we can make a prognosis or adopt a plan of treatment. There are those whose minds are so organized, which lack some qualities and have excesses of others—usually a preponderance of the emotional, with a deficiency of the higher intellectual qualities—that they act badly under any treatment, however wise. Some patients take a pleasure in their distresses; it would be cruel to cure them; their pains are their possessions. Any man wishing to make them well would be no better than a thief or a robber. There are those whose chief felicity in life consists in doctoring and being doctored, and to whom the removal of their bodily ills would be like the death of long cherished friends. When such persons come under your care, you cannot expect any treatment to be as successful as with those strong and active intellects, who understate rather than magnify their troubles, and are resolutely determined to get well.

THE DISCOVERER OF ANÆSTHESIA.

BY DR. EDWARD H. BOWNE, DENTIST.

Author of Nitrous Oxide—How long will it retain its Anæsthetic properties.

The world knows nothing of its greatest men.—*Poet.*

In a recent speech of the Hon. A. H. Stephens, at the Georgia University, he claimed the honor of the discovery of anæsthesia for Dr. Crawford W. Long, a graduate of that institution, and the Georgia House of Representatives, on Monday, August 18, 1879, passed a resolution unanimously presenting the name of Dr. Long as one of the representatives of Georgia in the National Gallery of States, at Washington, as the discoverer of anæsthesia, probably acting on the remark of Stephens, made a few days before at the Georgia University, in his speech before the Alumni Association. Mr. Stephens also asserted in this speech that France, Germany, England and Russia all acknowledged Dr. Long's claim to this proud title. I would respectfully suggest that the Hon. A. H. Stephens and the Georgia House of Representatives are entirely mistaken in regard to whom the honor belongs of the discovery of anæsthesia.

The three most eminent claimants of the discovery of painless surgery by anæsthesia, were Dr. Horace Wells, a dentist of Hartford, Connecticut, and Charles T. Jackson, M. D., and W. T. C. Morton, M.D., of Boston, Massachusetts.

The Academy of Sciences of the Institute of France, awarded to Jackson a prize of 2,500 francs "for his observation and experiments upon the anæsthetic effects of ether," and to Morton, another of like amount, "for having introduced this method into surgical practice after the indications of Dr. Jackson."

But the dental and medical professions of both the New and the Old Worlds, after the most vigorous and candid investigation, concede the merit of having first demonstrated the happy idea of deadening sensibility in painful surgical operations, by using both Nitrous Oxide Gas and Ether to Dr. Horace Wells, and a noble monument has been erected to his memory in the public park of his native city, Hartford, Conn., as the discoverer of anæsthesia.

The American Dental Association, in 1864, passed resolutions declaring, "That to Dr. Horace Wells (now decased) belongs the honor of the introduction of anæsthesia in the United States of America. And in 1874 the dentists of England forwarded to Mrs. Wells, with a sum of money, an elegantly engrossed testimonial to the merits of her former husband, "to whom the world is indebted, not only for the introduction of nitrous oxide gas as an anæsthetic, but also for giving that impetus to the study of anæsthesia which has resulted in the introduction of chloroform, bichloride of methylene, and various other agents for effecting that purpose."

The Hon. Truman Smith, appointed by the American Congress to investigate the character and weight of the several and conflicting claims, reported, after a fair, impartial, exhaustiveand can did investigation, in favor of Dr. Wells.

And the Legislature of Connecticut, his native State, awarded to Dr. Wells, in 1847, a vote of thanks for his discovery of the use of nitrous oxide gas and ether in surgical operations, and in 1871 appropriated $5,000, and the City of Hartford $10,000, for the erection of a monument to his memory.

The American Government, thus far, have failed to confer any reward upon any one of the distinguished claimants. A costly and superb monument, designed and executed with consummate skill by Ward, the eminent sculptor, and erected at the cost of a wealthy citizen of Boston, in honor of this great discovery, now adorns the public garden of that city.

In speaking of the discovery of anæsthesia, that eminent Surgeon, Dr. Oliver Wendell Holmes, exclaimed : "The knife, in searching for disease, has been steeped in the waters of forgetfulness, and the deepest furrow in the knotted brow of agony has been smoothed forever."—

Rocky Hill, N. J., August 25, 1879.

NOTES.

Brooklyn Dental Society.

This Society held its Twelfth Annual Meeting, Oct. 13th, at the residence of Dr. C. P. Crandell, No. 508 Clinton Ave., Brooklyn. The following officers were elected for the ensuing year: President, Chas. D. Cooke ; Vice-President, E. H. Dickey ; Recording Secretary, C. P. Crandell ; Corresponding Secretary, W. H. Atkinson ; Treasurer, W. A. Campbell; Librarian, I. C. Monroe.

C. P. CRANDELL, *Rec. Sec'y.*

L. G. NOEL, M.D., D.D.S.—We notice that our friend has, in addition to his office in Nashville, Tenn., established another at 204 Chestnut St., Louisville, Ky., where his friends will find him during the first half of each month.

The Annual Meeting of the Maryland and District of Columbia Dental Association.

The Annual Meeting of the Maryland and District of Columbia Dental Association was held in the Lecture Room of the Baltimore College of Dental Surgery, September 2d, 3d and 4th. The President, Dr. J. Curtis Smith, of Washington, in the chair.

The following officers were elected for year 1880: President, Dr. M. W. Foster; Vice-President, Dr. H. B. Noble; Recording Secretary, Dr. H. M. Schooley; Corresponding Secretary, Dr. J. B. Ten Eyck; Treasurer, Dr. T. W. Coyle; Executive Committee, Dr. R. B. Donaldson, Dr. J. L. Wolf, Dr. C. S. Duck; Secretary, H. M. Schooley.

A Pleasant Remedy for Toothache.

Our cook presented herself to me with a swollen cheek, asking for something to relieve the toothache, from which she had been suffering all night, and for which she refused to have the tooth extracted. After cleansing the decayed tooth, I saturated a pledget of cotton-lint with the compound tincture of benzoine, and packed it well into the cavity, hoping this would suffice for the time, bidding her to come in two or three hours if she was not relieved. I was turning away when she remarked that it might not be necessary, perhaps, as the pain was already gone. Supposing her faith had a large share in her relief, I would not allow myself to think that the medicine had anything to do with the cure any more than so much hot water would have done. But when I arrived at my office, there two other patients awaiting me with the same affliction, and I determined by way of experiment, to use the same remedy. To my agreeable surprise both patients declared themselves immediately relieved, and begged a vial of the tincture for future use.

During the Winter a number of similar cases applied, and were instantly relieved by the same treatment, all expressing much sattisaction with the remedy.

In December I told my druggist of the discovery, and recommended him to sell it to any person applying for "toothache drops." This, he reports, he has done, and that every one seems delighted with the medicine.—*T. C. Osborn, M. D., in New York Med. and Surg. Brief.*

New Anæsthetic.

Mr. Edward Warren, in his regular letter to the *North Carolina Medical Journal*, June, 1879, says: The French journals contain an account of the successful employment of Professor Bert's new *anæsthetic*, which consists of nitrous oxide 85 parts, and oxygen 15 parts under tension; Professor Labbé, the distinguished surgeon of Larboisière, having occasion to remove an ingrowing toe-nail, carried his patient to the "Ærotherapic Establishment" of Dr. Daupley, and administered the anæsthetic in a chamber, the atmosphere of which had been compressed to 92 centimetres. After the lapse of a few seconds the patient became perfectly insensible, and the operation was performed and the dressing completed, without the slightest manifestation of pain at the time, or the development of any unusual symptom afterwards. Under ordinary conditions, this mixture of nitrous oxide and oxygen produces no effect upon the economy, while its employment, under tension, results in the speedy development of an anæsthesia, which is profound enough to render surgical operations painless, and of so innocent a character as to preclude the possibility of a dangerous complication.

A Substitute for Gutta Percha.

Dr. W. Reigler, of London, announces the discovery of a substitute for gutta percha, known as Rolata or Bolata gum. He says: It is inferior in the extent of its uses to caoutchouc, but surpasses gutta percha It is the milky sap of the bully tree on the banks of the Orinoco and Amzon rivers in South America. The operation of winning the gum is similar in every respect to that employed with caoutchouc and gutta percha. It resembles gutta percha so much in its general properties that much of it is shipped from Guiana and sold for gutta percha It has, however, many superior qualities. It is tasteless, has an agreeable color on being warmed, can be cut like gutta percha, is tough and leathery, is more elastic than gutta percha, and consequently more flexible. It becomes soft, and may be joined together at about 120° F., but requires 270° F. before melting, higher than putta percha. It is completely soluble in benzole and carbon by sulphide in the cold. It becomes strongly electrified by friction, and is a better non-conductor of heat and electricity than gutta percha, and may, therefore, be successfully used for electrical and telegraphic uses.

Erratum.—In Dr. C. A. Marvin's article, this number, a part of the edition reads "alveola" instead of "alveolar" as was written in the manuscript.

JOHNSTONS'

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ECLECTICISM IN DENTISTRY.

BY A. NAPOLEON ROUSSEL, D.D.S.

While the champions of the "New Departure" and the "Accepted Creed" are wrangling over the claimed superiority of their respective methods, little or nothing has been said in regard to eclectic dental practice.

Taking gold as the first note of the dental gamut, and amalgam as the typical representative of the plastic class and the last note, you will at once perceive the great space intervening between these extremes. This grand space, then, belongs to the eclectic, and while the extremist is harping away on his one poor work, the eclectic is performing the most agreeable fantasias on the entire gamut. Hobbies are dangerous; they are to be shunned: they make men fill incisor teeth with amalgam; they make men say, "I never use anything but gold." A condition of things to be deplored—a matter of serious regret.

Extremists are very prone to take a decidedly prejudiced and narrow view of all systems that are in any way opposed to their own, not stopping to inquire whether they possess advantages which their own lack, or whether some idea might not be borrowed from the one to be added to the other, to aid towards the perfection of a system. This they do not do: they choose rather to run in the groove that they have accommodated themselves to, and, in this respect, they fail to make use of the highest faculty given to man, viz.: the power of reasoning.

Extremists and hobbyists are ever ready to rush into print with folios of *tabulated* results, claiming to have found the philosopher's stone, and crying "Eureka" at the top of their voices; but this great excitement, as is usual in such cases, is followed by great reaction and depression on the part of the extremists, and about which they are quite reticent, and have little or nothing to say.

It is not the object of this paper to enter into a description of the merits and demerits of the various filling materials, or when, where or how to use them; but believing, as we do, that gold, amalgam, tin, gutta-percha, oxychloride of zinc, and even *cotton*, all hold an important place in dentistry, we recommend the eclectic use of all.

Likewise do separation and contour have their advantages, but to assert that all teeth should be contoured, or all teeth separated, would at once be illogical and absurd.

At the present day filling teeth is the operation mainly resorted to and relied upon for their preservation, and gold and amalgam are the materials mostly used for that purpose. Considered eclectically, gold and amalgam constitute the foundation of operative dentistry. Considered antagonistically, they become two rocks on which many a tooth has been and will be wrecked, and they then constitute the Charybdis and Scylla of operative dentistry.

Victor Cousin, the most brilliant eclectic philosopher of modern French times, says, in reference to the different schools of philosophy: "That the eclectic is the only method now open to philosophers, whose function thus resolves itself into critical selection, and nothing more. Each system, he asserts, is not false, but incomplete, and reuniting all incomplete systems we should have a complete philosophy, adequate to the totality of consciousness.

And thus it is in dentistry. We should endeavor to unite all incomplete systems so that the result would tend towards that state of perfection that we are all so anxious to attain; and in doing this, we should exercise that judgment that will aid us in the selection of whatever will best answer our purposes and meet the requirements of the case, whether it be a departure from the "New Departure," the "Accepted Creed," or any other non-eclectic practice.

In conclusion, we would remark that it behooves us as dentists to be eclectic in our practice. It is a duty we owe to our patients to give them the best we can, whether it is the experience of others or not, and quite irrespective of any hobby that it may be our especial delight to ride.

DENTISTRY RUN MAD.

To lie like a dentist is a familiar transatlantic proverb. As proverbs do not originate without an application, it is palpable that somewhere in the past dentists existed whose statements were accepted *cum grano salis.* That was in the past. Those men have long since journeyed to the bourne from whence no traveler returns. Let, us however, be charitable of their faults and give them due credit for their virtues. They pioneered a wide field, and doubtless encountered many sources of annoyance that do not arise to tantalize the modern practitioner. They were physiologists, surgeons, phlebotomists, hairdressers, chiropodists, and dentists, all combined. A monument of their versatility still exists in the familiar striped barber's pole. Red, or arterial blood, indicates that they luxated teeth ; blue or venous blood, that they cupped and venescted, and white that bandages were subsequently applied. Dentistry has still its annoyances and its complications, but premising from the recently reported results of certain experiments performed by our more sanguine brethren, at no distant day the art will be reduced to an exact science and the loss of a tooth will result only from the grossest negligence on the part of its owner. Then the temptation to utter beclouded statements will have vanished, public confidence will be restored and the ancient proverb will fall into an ignominious oblivion. So mote it be ! Until recently the great obstacle to rapid and perfect operations upon the dental organs has been the limited space within the buccal cavity. The lack of human foresight has again been demonstrated by a simple and ingenious device for obviating that difficulty, *i. e.*, by performing the operation out of the mouth. The advantages of this method present themselves so forcibly to everybody—the patient excepted—that its adoption bids fair soon to become general. The celebrated French authority, Dr. Magitot, treats all diseased teeth by extraction and replantation with only eight per cent. of failures. Filling and replanting has been so long practiced that it ceases to be a novelty, but the extraction of roots for the convenience of setting pivot teeth is a quite recent innovation. What simplicity ! Extract the root, screw on the porcelain crown and replace, that is all. Such is the system recently discussed before the First District Dental Society of New York. The assembled lights of the profession solemnly discussing a practice that any carpenter's apprentice would pronounce impracticable, after a moment's reflection, offers a salutary spectacle to the younger members of the fraternity. Impracticable, for the simple reason that a screw must be turned until tightly fixed, when, if the head be square or irregular, there are at least ten chances against one that a given surface will not face in a desired direction, consequently the face of the tooth will as likely be presented to the palate as to the view. The organ might work well enough, but its appearance would not be calculated to enhance the reputation of the dentist who inserted the substitute. A favorite practice of the French authority already alluded to, is to excise the apices of all badly diseased teeth before replacement. This system is also simple and commendatory. Our method of curing chronic abscesses is simply to thoroughly cleanse the tooth and roots, fill the roots and pulp cavity with cotton, well saturated with carbolic acid, then force a piece of hot gutta-percha firmly into the cavity with a warm burnisher. The gutta-percha, acting as a piston, usually causes the acid to flow freely from the fistula, thus thoroughly cauterizing the abscess and effecting an almost certain cure. This process is applicable to all teeth ; those that cannot thus be permanently cured being exceptions, although a second or even a third cauterization is sometimes necessary to accomplish the desired result. No violence is done the tooth by this practice, therefore, there can be no absolute failures, for, if the desired end be not attained, the organ may still render its owner good service for many years. True, a great reputation will never be attained by following so homely a course of treatment as this. The people like science, and will always lend an attentive ear to the practitioner who talks glibly about the pericementum, Nasmyth's membrane, odontoblasts and leptothrix buccalis ; and the operator who employs the hypodermic syringe, excises the apices of diseased molars, and trepans the jaw bone, will inspire more confidence than the ignorant dentist who simply cures the lesion and does not render his conversation unintelligible by the mass of scientific nomenclature with which it is interlarded.

To what extreme do the partisans of replantation propose to carry their pet theory ? Will their enthusiasm lead them to establish laboratories for the repair of natural teeth ? This would be a beautiful experiment. The teeth could be extracted by the country doctor or dentist, sent to the city expert and returned in a few days neatly repaired, boxed and numbered ready for replacement, thereby obviating the expense and annoyance of the long journey that so frequently deters the provincial patient from availing himself of the services of a popular city practitioner. Seriously is there any advantage to be gained from such a revolution of the old systems of practice, or are the present means of treatment so ineffectual as to warrant their abandonment? Replantation is justifiable in certain rare cases where teeth have been accidentally extracted, but such heroic treatment should be resorted to only when all other remedies have failed. Other than these demands resulting from accident there is but one symptom that appears to warrant recourse to so serious an experiment as extraction and replantation. This exception is where acute periostitis threatens to terminate in abscess. These cases are among the most perplexing that the dentist is called upon to treat, and he is frequently compelled to recommend some doubtfully useful remedy or simply acknowledge his inability to relieve the suffering without resorting to extraction.

If extraction and immediate replantation will arrest the inflammation and relieve the patient in cases of this nature, then might it be indicated, otherwise let us for a while longer follow the instruction of our early tutors. Probably others than the writer would be pleased to have this final point elucidated and will await with impatience the report of those who may already have essayed the experiment. IGNORANTIA.

CLEANING TEETH.

BY G. A. MILLS.

Read before the First District Dental Society.

How many people who call upon the dentist for his services understand the full import of the heading of this article? How many dentists have anything like a fair degree of understanding regarding this matter? How many dentists make it the first object in their examination of the mouth? I think I can suggest a few directions that would come under the head of "practical hints to to the dentist," and if accepted and followed, the result will bring so much satisfaction both to the patient and the operator as to permit of no future departure from the practice. I hear the remark all along the line, Who does not clean teeth? Echo answers, "Who does?" A few do; but close observation proves very conclusively that there is far from being anything like a respectable number who do set to work with the same degree of zeal that is manifested in the other departments of practice. Patients come to us to have their teeth examined, and the common practice is to look for decayed teeth. I say the *common* practice. Now, I do not think this is altogether so, because of ignorance or wickedness; and yet, to some extent, it may be a little of both. As dentists, we are morally bound to preach the gospel of saving the teeth, and also to be zealous for their *healthy surroundings;* for what does it profit the patient to have the teeth filled if the diseased conditions of the contiguous parts are sweeping them to destruction by destroying both the soft tissue of the gum and the hard of the sockets. "Cleaning teeth" has meant, heretofore, too much improving the facial appearance of a few front teeth—(A person going to a party or soon to be married, calls to get a fifty cent shine). The operation of cleaning teeth means, according to the present-day standard, removing all debris from the cutting edge to apex of the root (if it be exposed), all corroded surfaces, all stains, &c., and to wind up with a final polish, particularly on the enamel surface. As a practice, this should be the first step, and then every intelligent observer can learn the real condition of the teeth. This operation is verily the true method of examination. Now, to make this effectual and appreciated, patients calling to have their teeth examined should be informed that an appointment must be made which, as a rule, they will readily agree to. At the appointed time commence and clean each tooth from A to Z. If there be deposits of salivary calculus remove them (I would say a-la-Riggs) by any method by which thoroughness can be secured. This being done, by the use of corrundum disks (to a large extent), stains, depressions, defects of tooth structure, &c., can be removed. For giving a smooth surface, Arkansas stone disks, with the free use of water, are very efficient. A very effective method for polishing about the neck and other surfaces of the teeth, is to place a fissure bur in the engine and wind about it a piece of cotton, so making readily an elastic cone. Another valuable method is the use of the string and tape polish (which I described in my series of articles on the so-called Rigg's Disease, published in the *Cosmos,* 1877,) to be used with moistened chalk and tooth powder. The final polishing should be done with the brush-wheel and the engine, using the polishing materials above referred to. Now, after this has been performed as thoroughly as it ought to be, and the beneficial result demonstrated, I think this method will impress the operator as of so much value that he will not hesitate to make it the rule of his practice ever thereafter ; my word for it, as well as the testimony of those who practice it, no service performed in our offices will bring forth more evidence of real appreciation than this. A service of the nature I have described will, in ordinary cases, require at least one hour's time, but many cases will need much longer treatment. We will see, now, that an hour or more of the office time has been consumed and acknowledged by the patient to have been well spent. I think we have that which will militate against the remark so often heard in our societies and from those who ought not to make it, viz. : "That the time spent in such operations is all very well, but the patients will not pay for it." This is not true ; they will pay, and liberally too. This matter of cleaning teeth should be well considered by young practitioners, for they can in no way pave so ready and so sure a path to a successful practice as by starting in this way. This will be an easy thing for a young practitioner to do. Alas! how many a one pines behind the diploma hanging on the wall of his primitive office, because of watching and waiting for patients who so long delay their coming. I predict that he who adopts as his motto, "clean teeth," need have no fear for the full employment of his time. This service well understood, will give the practitioner greater success in his professional life than all theories of the so-called "New Departure" system could. A dentist deficient in all the other departments of practice, and zealous in the cleanliness of teeth, will be more successful in saving them, than one more efficient in general practice and neglectful in this particular. Look through all the discussions of our societies, and how much is said upon this subject? Cleaning teeth includes also securing a healthy mouth, and it is the most practical question of the hour, which *must* and *will* in time be in advance of all others. He who holds the position of teacher in the schools should spend more time in impressing the importance of this practice on the minds of his pupils than is at present the case. I have visited some of the schools and have quizzed the students on this subject, and found that it was receiving but a passing word in the teachings. But I need not have quizzed to find that out ; silent but undeniable witnesses told the *truer story* as I passed from chair to chair in the clinical department. Not in a single instance did I find this matter receiving any attention. I would suggest (as the importance of this subject bears so fully on me at this time), that some student in the institution should have a clinic on his own teeth *first*, by some one who has the matter at heart and understands the full import of it, and then have the students operate, *each* on the *other*, and by this means an impression can be made which will transcend even an earnest effort in the lecture-room.

Up and down the avenues of our professional life we hear the declaration of those who have tarried long at the chair, that "Dentistry is a failure," "Sooner or later the forceps must come and put an end to the life effort." "Dentists do more harm than good," "Incompatibility of filling material," "Defective operative ability," "Cohesive gold," &c. Now let every one ask himself, "Have I given the attention to this subject which it deserves?" "Have I fully demonstrated in my practice the value of it?" Only a few days since one of our most brilliant fillers acknowledged that he had not given his attention to cleaning the teeth as fully as he felt he ought to have done. We must reverse the order of our clinics if we will make them most successful, and make this service occupy the first place in the clinic-room—we will thus give it a potentiality that will be felt and be productive of great good. Until this is done, we make an almost useless expenditure of time and mental energy in trying to discover that which will put us in the way of solving the problem of saving the teeth, and will answer the question, "Why do teeth decay?" Of course, I do not mean to be understood that this practice alone settles the etiology of dental caries. As a truism—defective tooth structure admits of the possibility of decay, for the typic tooth will resist it. All unclean and unhealthy mouths are in a condition to accelerate dissolution of the soft as well as the hard tissues, and the result in the non-resisting constitution is general debility from a lesser to a greater degree. It is not at all uncommon to be able to trace directly to the unhealthy condition of the mouth and teeth local diseases of the eyes, ears, nasal cavities, and vocal organs; while in not a few cases the mucous membrane is deranged from the lips throughout the entire track of the alimentary system. The more attention I give to this subject, the more I am confirmed in the belief that we have as yet but a faint conception of the deleterious effects of a diseased oral cavity upon the general health. We cannot be too zealous in following out the line of practice which I have recommended, for by it to us is committed the responsibility of keeping a healthy vestibule of this temple of the human body. I predict the time is not far distant when the general physician will be forced to take cognizance of this fact, and will acknowledge the results of an intelligent practice by us in this field, to a far greater extent than he now does. We have come to understand this, that *all* inflammatory action is chemical. In its incipiency it may be circumscribed, and, in proportion as constitutional resistance is present, it is held in check until an additional complication is coupled with the first invasion, when the inflammatory action becomes intensified. Nature is now called upon to do extra duty, and the rallying of the vital forces to the point of attack often reveals an unknown weakness in some other part of the system, which develops to such an extent as to produce general debility.

THE SIXTEENTH ANNUAL MEETING OF THE CONNECTICUT VALLEY DENTAL SOCIETY, CONVENED AT THE HAYNES HOUSE, SPRINGFIELD, MASS., OCT. 16th, 1879.

Opened at 11½ A. M., President BRACKETT in the chair.

Drs. J. S. Hurlbut, E. A. Stebbins and D. Murless, were appointed a committee on membership.

The Secretary's report was read and adopted.

The Treasurer was given further time to report.

On motion of Dr. L. D. SHEPARD, it was

Voted, That a committee of five be appointed to place in nomination a list of delegates to attend the next annual meeting of the American Dental Association, to be held next August at Boston. This committee to report to the semi-annual meeting of this Society, next June.

Voted, That this committee be chosen from the floor, by nomination.

The committee thus selected were Drs. C. A. Brackett, F. Searle, O. R. Post, J. Beals, and J. F. Adams.

Voted, That visiting dentists and physicians be invited to take seats on the floor, and participate in the discussions of the Convention.

Voted, That Dr. J. M. Riggs, of Hartford, Conn., be placed upon the list of honorary members.

Voted, That the time and place of the next meeting be referred to the Executive Committee. The following places were named and commended to the consideration of the committee, viz., Amherst, Holyoke, Mt. Nonotuck, and Greenfield.

The committee on membership reported favorably upon the names of Drs. F. W. Williams, of Greenfield, Mass.; F. W. Buffington, of Springfield, Mass., who were elected. Adjourned till 2½ P. M.

AFTERNOON SESSION.

Called to order at 2:45. President BRACKETT in the chair.

Committee on membership reported favorably upon the names of Drs. G. W. Lovejoy of Montreal, Canada, and E. O. Wilbur of Hazardville, Conn., who were elected.

Voted, That the last three years' reports from the Secretary's records, including the papers—or abstracts from them—and the discussions upon them, be printed.

The committee upon publication appointed were as follows :

Drs. C. T. Stockwell. Springfield ; L. D. Shepard, of Boston ; W. H. Jones, of Northampton ; J. F. Adams, of Worcester ; L. C. Taylor, of Hartford, Conn., and A. M. Ross, of Chicopee, Mass. Dr. Stockwell, chairman of said committee.

The Treasurer presented a report, which was referred to the Auditing Committee :

Voted. That Dr. Shepard be invited to bring before this Society a patient that has been under his treatment for irregularity.

Voted, That we now proceed to the election of officers for the ensuing year.

The officers elected were as follows : President, C. F. Stockwell, Springfield, Mass. : 1st Vice-President, C. S. Hurlbut, Springfield, Mass. : 2d Vice-President, J. N. Davenport, Northampton, Mass. ; Secretary, A. M. Ross, Chicopee, Mass. ; Assistant Sec'y, G. W. Crittenden, Northampton, Mass. : Treasurer, N. Morgan, Springfield, Mass.

Executive Committee : C. Fones, Bridgeport, Conn. ; O. M. George Bellows Falls, Vt. ; S. E. Davenport, Northampton, Mass.

The introduction of officers then followed. Drs. Searle and Morgan were appointed a committee to escort Dr. Stockwell, the President elect, to the chair.

The committee having performed their duty, Dr. Searle remarked as follows :

GENTLEMEN : Your choice for executive officer needs no introduction to this Society ; I have the pleasure of presenting to you Dr. STOCKWELL, of Springfield, President elect for the ensuing year.

DR. STOCKWELL'S ADDRESS OF ACCEPTANCE.

GENTLEMEN OF THE CONN. VALLEY DENTAL SOCIETY : I shall detain you but a moment at this late hour of the session, in expressing to you my deep gratitude for the honor which you have so generously bestowed upon me. Could I have been allowed to consult my own feelings, I should have preferred to take at least one year's rest, having served as Secretary for the last four years ; and in the one or two cases when the matter has been suggested to me, I have remarked that, in my opinion, the Society's interests would be best subserved by the election of some one else to the Executive office ; therefore, coming as it does, a free and generous gift—unsolicited and without any manipulation on my part—I accept it all the more gratefully, conscious however of my inability to so fittingly and efficiently fill the place as in the case of my immediate predecessor. I can only pledge you my best endeavors and service, relying, as I do upon your charitable coöperation in the discharge of the responsible duties the position places upon me.

ANNUAL ADDRESS.

The annual address by Dr. C. A. Brackett, the retiring President, was upon the subject of retaining practice. He introduced his subject by reference to a remark made at the Boston convention concerning a dentist in the full vigor of manhood, having but little to do, his practice leaving him. Taking this for his text, and excusing the extemporaneous character of his remarks, the doctor said : " I recognize that a professional life has its period of adolescence, of maturity and of decadence. It is, however, not of the period of legitimate decadence that I wish to speak to-day ; that period comes *naturally* to all of us, but it is of the *premature age* arrived at in the professional life to which I shall address my remarks." Numerous criticisms made by patients were analyzed, and their foundation and reasonableness considered. Some of the criticisms mentioned were of want of neatness and order in personal and office arrangements ; of indulgence in various bad habits ; of want of punctuality ; of lack of proper attention to business ; of want of consideration and gentleness, and sympathy in operating ; of professional incompetency ; of irregular and exorbitant fees, and of want of faithfulness, honesty and straightforward integrity. So far as these criticisms are just, we should seek to avoid giving any ground for them. Particular mention was made of the danger of undue pride and independence growing out of success, and it was urged that the same care and pains, the same studiousness and concentration, the same earnestness and devotion so necessary for the establishment of a good reputation and a successful practice are also required for their retention and continuance. In conclusion, let me say, and I say it without detraction from the clerical profession, that there are no class of men more in need of true Christian character than dentists ; that no man needs to be more of a saint than a dentist. If we will but try to realize this fact, and the importance of some other ideas that I have presented to you, we will find assistance that may tend to an appreciation between patient and practitioner that has not yet existed.

DISCUSSION OF ANNUAL ADDRESS.

Dr. J. BEALS, Greenfield, Mass : I am very glad that Dr. Brackett has brought this subject before us. I am glad that he has brought these practical hints home to our attention, and that we may apply them as far as we need them, I earnestly hope.

PROF. L. D. SHEPARD : I need not say that I was intensely interested, because I *was*. Nothing need be added to what has been said. I very well remember the remark made at the Boston Convention, it touched me particularly, going, as it did, beyond the remark into the man's history. It is sad, indeed, and a very bad state of affairs when a man finds his patients gradually leaving him ; and the causes of this decadence in business may be of a varied nature. It is *the* question in each case, and such a question assumes a serious aspect to man who has thoughts for the future. I have been in the habit of giving a talk to students during the term, involving how to get and keep patients. I usually divide my subject into three heads : The Gentleman, the Scholar and the Christian. I always contend that there can be no success where there are no true convictions. The getting of a successful practice is secured by these convictions. A gentleman who had succeeded in photography, while calling upon me, said, that after 7 o'clock A. M., he could usually be found at his place of business, that it had been a life habit with him to make an effort in *the morning*. The man who rests on laurels already won, is going down the stream. A man must continually stem the tide to succeed. Constant effort is necessary to succeed.

Dr. H. M. MILLER, Westfield : There is an odd connection in this subject. Much of the criticism I have heard about my brother dentists, comes from people who think it will be pleasant ; that to speak ill of another dentist, who is a competitor, will afford us pleasure. This is untrue of good men. I mean to be kind and treat everybody well. My brother dentists have been very considerate of me, up where I live.

Dr. JOHN ALLEN, N. Y : I must say I was struck with the force of Dr. Shepard's remarks as to how to maintain a practice. A man who relaxes in his efforts to keep up, will surely fall behind. The greater and more difficult the obstacle, the more resolute should one be to overcome it ; if this is not possible in the man, he is effeminate in character. A. T. Stewart said to me, but a little while before his death, "It has "been my habit of life to have *all* I can attend to, and I never had "any more than I have now. If I had availed myself of my "opportunities, I might have been worth something now." Dr. Shepard's remark brought to mind this fact, that if there are obstacles arising in the dentist's path, that he does not feel able to surmount, if he only *will*, it will make a better man of him. Does the storm-beaten sailor give himself up to the opposing elements? No! indeed. He close-reefs his sails, and it is, tack! *tack!* TACK!—utilizing these very head winds to progress against. We must not give up to, but *use* these very opposing elements, and we will be better men.

Dr. C. S. HURLBUT: I am gratified by these remarks; they are fruitful to our good. There are certain elements that go to make up a man's success that he has nothing to do with. When a man is going up in prosperity all welcome him, and all seek him; when something wrong comes to him and the wheel turns against him, you will see the community discard him and seek the successful man. A. T. Stewart was a hard working boy, and always worked hard as a man. Washington Gladden's sermon, last Sunday, was one that you all should have heard. It was to the boys of Springfield, upon its successful men, and it was illustrated by the names of eighty-eight of our successful merchants. Ninety per cent. of them were farmer's boys, and five per cent. were rich men's sons, with nothing much to do as boys. Dr. Searle has been a hard-working man, and so has Dr. Allen. Success is apt to intoxicate, and I am sorry to say, that some in our profession are addicted to the wine cup, and they are stepping down, and their practice is gradually leaving them.

Dr. F. Y. CLARK, Savannah, Ga.: I don't wish to say much upon this subject, but, having been reasonably successful, I feel as if I should like to say something. The first thing: let us be true to ourselves! and, as Dr. Shepard says, "be true to our convictions," and we shall be false to no man. Let us enter the profession uprightly, and act uprightly with our patients, and in our dealings with *all* men be just. It is our duty to approach those that we condemn very many times.

On motion, it was voted that inasmuch as visiting dentists from abroad could not be present the second day, that a departure from the regular order should be made in their favor.

Motion was here made to listen to Dr. F. Y. Clark's paper. Carried.

("Bacteria," a paper read by Dr. F. Y. CLARK, will appear in next issue of *Miscellany*).

Dr. MILLER: There is a query I would like to make. Unless I misunderstood the paper, it said that bacteria abound in tartar. If this is so, why is it that they do not work beneath it upon the teeth? Why is it that teeth are not decayed where tartar is deposited?

Dr. CLARK: The paper merely suggested their presence in the tartar; the vibriones have been found in the saliva—they may originate in the saliva.

Dr. MILLER: But I understood you to say that they existed in the tartar.

Dr. CLARK: So they do!

Dr. MILLER: The paper is very interesting, and I meant to comprehend what I criticized: but, evidently, I misunderstood the doctor.

Adjourned till 7½ o'clock, P. M.

ON THE POSSIBILITY OF MAKING PORCELAIN GUM BLOCKS IN THE ORDINARY DENTAL WORKROOM OF GENERAL PRACTICE.

BY F. H. BALKWILL, ESQ.

Read before the Western Counties Dental Association, August 4th, 1879.

GENTLEMEN,—Having imagined that I saw the road to reducing the tedium and expense attending the working of porcelain gum blocks to a process comparatively easy, and which would enable it to be as commonly worked as vulcanite, in the enthusiasm of anticipated success I promised our Secretary to give a paper on the subject with practical illustrations. In preparing these, however, I have met with so many hindrances and disasters that it occurs to me that I was rather rash to offer to occupy your attention with a process which can hardly be said to be yet in its infancy.

I will, therefore, claim your indulgent criticism. I can produce no grand successes, but I have made a good many experiments during the last two years, and although these in the main were failures, yet the lessons learned have enabled me very much to simplify and shorten the process, and may be of use to any one who feels inclined to work in the same field; and in apology to others I can only say that I suppose from the grain of truth which there is in that abominable maxim of Rochefoucault's that, "There is something not entirely disagreeable to us in the misfortunes of our best friends," from experience I have found myself, as will my professional brethren, quite as well entertained by, and disposed to give credence to, a narrative of a failure as of a success.

The idea of being able to make continuous porcelain gum work has always exercised a sort of fascination for me, and I think the feeling is pretty general. When a pupil in your workroom, Mr. President, I remember that you had an inclination in the same way, and some extraordinary blocks I helped to make there. One which we considered a great success, I remember, we showed with pride to a medical friend who came in, when he burst out laughing. This so cooled our ardor that, I think, it was the last we tried.

Many dentists have had furnaces fitted up, but they have, I think, with few exceptions, abandoned the work. This showed that it is an ideal, and as a matter of fact no material has approached porcelain as a natural imitation of the gum.

The use of gum blocks is restricted and inconvenient in some ways. We require to be able to adapt the teeth to the bite or appearance individually, and the fact of having to move them in blocks is a serious disadvantage. What we want is to arrange the teeth and add the gum afterwards. It is to this aim that my efforts have been directed. When Mr. Fletcher brought out a gas furnace for the purpose my thoughts were directed to the subject, as I thought that the early applications of the means of heat would make the process practicable.

I therefore determined, about two years ago, to make a few experiments, and procured some of the materials as supplied by the Americans for the purpose. Messrs. Lemale & Co. were also kind enough to supply me with some of their own body and gum, and not only so, but Mr. Fawsett, of their firm, with a kindness it is a pleasure to acknowledge, took much trouble in giving me information when I met with any difficulty, and also sent me several different gums to experiment with.

My first experiment was in a furnace, which we used to melt our gold with, a blacksmith's forge-bellows and a coke fire, two blocks, one of Amercan gum, the other of Lemale's was placed in a muffle, which was covered over with coke and a white heat kept up for a half an hour.

Lemale's gum had disappeared, the American was as you see it. Convinced by this experiment that heat would melt the gum, I procured Fletcher's furnace, and having a set on hand which was very suitable for it, arranged the teeth for the work. But to try the gas furnace first, put in a small block, but, although I got heat enough to fuse this, the color was quite spoilt, and it was some time before I found out that the cause of this was the construction of the muffle, which allowed the entrance of burnt gas. The slightest entrance of this I have since found always fatal.

If a muffle cracks so as to admit the entrance of gas, the best way is to fill up the crack with a little body. After this defect was remedied the pressure of the gas or the direction of the wind varied so that I could not get heat sufficient, and enclosed was the result. As the set could not wait, it was sent out in the usual way.

After some further experience I had some success, sufficient to send out a couple of suction vulcanite uppers with all the eight teeth in a continuous block, but the process was very tedious. After the block was set up it had to be gradually put further and further into the furnace, taking three or four hours to reach the hottest place, and then to be kept there half an hour; then as the material contracted in fusing cracks took place, these had to be filled up after the piece was cooled down, and the process repeated, so that it took at least two days to make a block. One block, which was otherwise tolerably successful, was spoiled by using water, for the gum, which had been exposed in the workroom all night, and had presumably absorbed gas products, as the fresh gum was spoilt in color.

The slightest amount of over-heat I found spoilt English teeth, first bleaching them, and then causing them to melt and lose shape. In this respect, I found Ash's teeth stood better than Lemale's, but neither of them are to compare to American teeth in refractiveness.

But the difficulty which finally compelled me to abandon Fletcher's gas furnace was the impossibility of sufficiently annealing the pieces. The draught of cold air which took the place of the flame after the gas was turned out, made nearly all the pieces inclined to coare: and, indeed, this difficulty I have not quite got over yet, although I think the means of doing so are sufficiently evident. One very curious cause of coaring occured. Having run short of the American body I tried some American gum over Lemale's body, but Lemale's body melts at a lower temperature than the American gum, so that remaining melted after the gum was hardened its contraction at a different time has caused the American gum to crack in all directions.

A few months ago, an article by Mr. Fletcher drew my attention to the subject again, and I determined to make a few experiments with his injector furnace. The first experiment I made by placing a small muffle upright in the furnace and making a lid or brim to it by surrounding it with plaster and sand, so as to rest on the edge of the furnace, allowing vents as rays all round.

I found a great convenience in working this, that the state of the work is easily seen and the heat attained was quite sufficient, and I suggested this form to Mr. Fletcher, who had this furnace made to meet the suggestion. I found this furnace hardly give heat enough, the muffle being too large and shallow for the power of the flame; but the greatest cause of difficulty is, that the burnt gas naturally rises, surrounds the mouth of the muffle, and so gases the work.

My next trial was to enter a small muffle in the injector furnace opposite the injector, bringing the muffle through the furnace, so as to touch the side next to the injector, but keeping it off the bottom so that the flame can play all around the muffle. I find in this little furnace that all the heat required can be obtained, about thirty-five minutes being all that is required to do the American gum, or twenty-five Lemale's.

After many experiments I have found it best not to dry and slowly heat the blocks, but to place them at once, whilst wet, in the furnace and heat up quickly, *i. e.* in ten minutes. The reason I cannot tell. I suggest that the steam going out through the surface of the gum keeps this cool the longest, so that the interior begins to contract first, but certainly I have had much less trouble with the blocks when placed in wet and quickly heated up than when carefully dried and slowly heated up, the cracking and curling up being in this case often very disappointing. This I consider one great step gained; instead of taking nearly all day after the block is made in slowly drying and heating, it can be done at once in thirty-five minutes. When there are more than three or four teeth I have found no certain cure for its cracking in contracting, and to ensure their being small and coming in convenient places, so that you may successfully fill them up in the second treating, I think it expedient to divide the gum with a knife whilst moist, on each side of the laterals in an upper block of eight teeth. Even when a block of eight teeth is safely made and mounted in vulcanite, the inherent weakness of its shape is such that the mere handling in polishing is almost sure to cause flaws to appear. These, however, do not interfere with its strength, as from the number of pins in the teeth there is a superabundance of retaining power, and for strength the piece depends upon the vulcanite; nor will they be visible in wear, although they may appear as blemishes to the work in hand. I do not, however, propose the work generally for such large pieces, but rather imagine it may prove serviceable for the four incisor teeth, above or below, when these have to be replaced between natural canines where there is much recession of gum. The want of power to do this adequately for a young patient has often been felt by myself, and therefore, no doubt, by others.

Two other precautions have to be noticed before describing how a block is made. In the first place, as the whole block will contract in the fire, the teeth must be set rather apart than they are wished to be in the finished piece ; and, secondly, the gum and body become viscid whilst contracting, and draw the teeth out of their hold in the plaster. To meet the latter difficulty two methods may be adopted :—Either twist fine platina-wire loops around the pins of the teeth before investing them, so as to give them a firmer hold in the instrument, or allow a slight ledge of plaster to come just over their edges in front. The first plan is rather troublesome to do ; the latter has the disadvantage that the plaster sticks to the tooth when hot, and rather spoils the polish. I will now describe the method of making a block. First, mount the teeth on a wax trial-plate, either to a correct bite or to the mouth, according to usual practice, only do not allow the wax to come up about the pins behind the teeth. To fix them to the trial-plate drop sufficient wax on them in front, but allow a little wax to project through between the divisions between the teeth, so as to strenghten the block, as the body is to take the place of the wax. Having mounted the teeth in the wax to the positions it is desired they should occupy, place the piece on the model and cut away all the wax behind the teeth except just so much as holds the teeth together and what covers the gum in front. The teeth and wax together now represent the desired block. Make an investment of equal parts silver sand and plaster, and set it so that the front teeth shall be horizontal and uppermost, and with a little plaster only continue the investment a little over the edges of the teeth. When set boil out the wax and the teeth are retained ready for the application of the body. The body is to be mixed with perfectly clean water, and the whole mould filled and modelled up to the fulness it is wished the future gum to be. A layer of gum is then to be added of about the thickness of a fourpenny-bit over the body divisions made on each side of the lateral to control the cracking, and the piece placed at the far end of the muffle with the gum farthest in. Heat up slowly for five minutes, then put on full power so as to get to a white heat in ten minutes. Ten to fifteen minutes of moderate white heat is sufficient for Lemale's gum, and twenty to twenty-five minutes for the American. To gauge the heat is a nice point. No doubt eyes differ, but I find if I lose the outline of the piece in the heat there is danger of the gum running away altogether. Stop up the injection hole with a small crucible and the escape by overturning the chimney, and give two hours for cooling. Then fill up the cracks with fresh body and gum and repeat the process.—*British Jour. of Dental Science.*

IMPACTION OF A GOLD PLATE AND FALSE TEETH IN THE ŒSOPHAGUS FOR UPWARDS OF TWO YEARS.

BY NICHOLL EVANS, M. D.

At 11 P. M. on April 26th, 1877, I received an urgent summons to go and see Miss A———, who was said to have swallowed some artificial teeth.

On my arrival I found an anæmic, exceedingly thin girl, aged twenty-one, an invalid for many years past, who informed me in a whisper (amongst other complaints she suffered from hysterical aphonia) that in the act of taking a pill, about fifteen minutes before my arrival, she threw her head back, and an artificial gold plate, with four incisor teeth attached, fell from the upper jaw into her mouth, and was swallowed with the pill. The plate had not long been made by the Dentist, and fitted rather loosely. She complained of deep-seated pain behind the sternum, about two inches from its upper end, and in the back half way between the spine of the right scapula and the vertebræ. She had not retched or vomited. My partner, Mr. Mavor, had also been sent for, and on his arrival we passed an ordinary sponge-headed probang into the œsophagus, which met with resistance at a distance of eight inches and a half from the lower incisor teeth. Using some pressure the sponge went beyond the obstruction, and was caught firmly on trying to withdraw it, but soon returned without removing the foreign body. This was repeated at intervals three or four times, with the same result, care being taken not to use violence in the withdrawal of the probang. We then gave a strong emetic of mustard-and-water, which was swallowed without much difficulty, and was quickly rejected in a fairly full stream, but without dislodging the plate. After some further rest we bent the end of a long stout silver probe into the shape of a hook, and fastening a piece of string on to the other end, passed the probe down the gullet beyond the obstruction, and hooked apparently one of the springs of the gold plate, as it required considerable manœuvring to detach the probe again, but no impression was made on the obstruction.

It was now 4 A. M., and as we had spent five hours in unsuccessful attempts to get the teeth up, we decided to send for Mr. T. Smith from town, who arrived at 8 a.m. After hearing our report, Mr. Smith passed an œsophageal bougie direct into the stomach, and turning around, said, "It has gone down; it is not there now." When, however, I again passed the sponge-headed probang, the obstruction was still met with at the original spot. Mr. Smith now tried to grasp the plate with a long pair of forceps, but without success. So, finding that our patient could swallow fluids, we decided, as she was becoming exhausted, to postpone further measures for forty-eight hours; and after administering an opiate we left her.

Mr. Smith returned on the 29th, and finding Miss A——— fairly well, considering the strain to which she had been exposed, again endeavored to seize the plate with a longer pair of forceps—after sounding with a probang and ascertaining that the plate was in the same place—but with no better success than before. We therefore resolved to trust to the "chapter of accidents," and fed her as well as we could with fluids and nutrient enemata, any further operation for the removal of the obstruction being for the time out of the question.

From this time the girl herself, as well as her parents, were unwilling to allow any further operative interference, as I could not guarantee its success, and it would not be unattended with risk. She continued to live, however, in much the same condition, swallowing such food as she could. The enemata were well borne for some weeks, when they had to be discontinued on account of irritability of the rectum. Mr. Smith saw her again at the end of November, seven months after the accident, but was unable to persuade her to submit to any further operation. She was now so thin that the spinal column could be felt almost without pressure immediately behind the abdominal walls.

In this state she remained until May 5th, 1879, when I was asked to call and see her, and was informed that she had brought up the teeth (two years and eight days after swallowing them). About 11 P. M., May 4th, she was attacked with retching, and when this passed off she inhaled a teaspoonful of chloroform (as she was in the habit of doing when in much pain). While drowsy from the chloroform she vomited, and, hearing a chink in the bason, she picked out the teeth from the vomit. She felt no unusual pain, and brought up no blood. Since then the pain in the œsophagus has not decreased, nor is deglutition easier, but it is not accompanied by the troublesome choking which for some months has generally followed the taking of food, especially of certain kinds.

I brought away the artificial plate, and on examining it found it almost unaltered in appearance, the gold being merely discolored in parts, while the plate fitted exactly the plaster cast of her mouth, which the Dentist had been kind enough to send me soon after the accident occurred in 1877.

The poor girl's previous history is a somewhat unusual one, and perhaps the fact of her living so long may be accounted for by her having had for years before what one may call an education in starvation.—Having been always a weakly girl, in 1869 she had a fall on the ice when skating, strained her left ankle, was laid up for thirteen weeks by that (and, query, the treatment of a bone-setter?) and has never walked properly since. During 1871 contraction of the leg set in. In June she caught scarlatina, and after it lost her voice. She was able to get about on crutches, but, the contraction of the leg continuing in spite of stretching, in 1876 Mr. Adams divided the flexor tendons behind the knee, but without any benefit following. The left heel now nearly touches the buttock, and the right leg has become similarly affected during the last eighteen months, though to a less extent.

She was always an eccentric feeder, no persuasions or threats on the part of her friends having any effect, and this eccentricity has increased of late ; wholesome food, or what is considered so, generally making her vomit, while she could swallow and retain, even after the accident, such things as watercress, jam, onions boiled and chopped fine, cream cheese, Osborne biscuits, minced ham or tongue, crabs, &c., though, of course, in extremely small quantities. The stomach appears to be very contracted, and she suffers frequently from colicky pains and constipation, for which she takes castor oil (with ease) once or twice a week.

Menstruation commenced ten years ago, at the age of thirteen, and occurred regularly for two years, ceasing then until 1877, since which time it has appeared occasionally, being more frequent during the last six months.

On May 22d (seventeen days after the rejection of the teeth) I passed a sponge probang into the œsophagus. On account of the pain produced, the examination was a hurried one. So far as I could ascertain, there was evidence of considerable pouching above and contraction at the point where the teeth were lodged.

On June 25th, there was no improvement in the general condition, deglutition being more difficult and accompanied with more choking.

Note by Thomas Smith, F.R.C.S.

I venture to add to Dr. Evans's account a very brief statement. The foreign body in this case consisted of four incisor teeth fixed to a gold palate-plate, and having on either side two very sharp hooks. It measured rather more than an inch an a quarter in its widest diameter. It must have very seriously obstructed the passage of food, and I quite agree with Dr. Evans that life would not have been prolonged had not the patient been accustomed to live habitually in a state of semi-starvation. When I last visited her, seven months from the swallowing of the teeth, I had never before seen any living person reduced to such a state of emaciation.

I may mention that at the time of the last attempt to extract the teeth, we had little doubt of being able to remove them at a future time, by waiting until presumably the œsophagus had become pouched above the seat of obstruction, but we were not allowed to make any further trial. There can, however, be no doubt from the sequel of the case, that this pouching did take place, and that at last the foreign body came to lie quite loose in the œsophagus, for the teeth were finally ejected without effort, and by an act of vomiting which, in one so debilitated as our patient, could have possessed but little expulsive force.—*Lancet.*

REGULAR MEETING OF THE FIRST DISTRICT DENTAL SOCIETY OF THE STATE OF NEW YORK, HELD AT THE OFFICE OF DR. O. A. JARVIS, NOV. 5TH, 1879.

Dr. J. Adams Bishop read the following paper :

Mr. President and Gentlemen of the First District Society :

Since the last meeting of this Society I have received the published "Transactions of the New York State Dental Society" for the year 1878." In one of the original articles in the edition, I notice such misrepresentation of facts as is calculated to do great injustice, and mislead the student in search of truth. It is my duty to state the facts, for I was thoroughly familiar with the treatment and history of the cases to which allusion is made, I therefore ask the attention of the Society a few moments in review of the cases, and shall offer the same for publication in our dental journals.

I refer to what is entitled a prize essay written by W. St. George Elliott, on "Gun shot wounds of the Mouth," and I may add that very much the same paper appeared in the *New York Medical Journal* for March 1879. The essay refers to the case of Carlton Burgan (operated upon in 1863) in which dentistry represented an interesting factor in the treatment, and conduced much to its great success. The injury could only be understood as requiring the aid of dentistry to supplement surgery by a piece of dental mechanism, and the special interest in the case, was in the requirement of a dental fixture as a *prerequisite* to enable the surgeon to accomplish the operation.

I refer you to the surgeon's report of the case. The late Dr. Gurdon Buck, in his "Reparative Surgery" published by the Appletons in 1876, says:

Page 36: "In devising a plan for the repair of this extensive loss of parts, it was judged indispensable, as a prerequisite step to any surgical operation, that some artificial substitute should be adapted to the cavity of the mouth that would supply the place of the lost maxillary bone, and afford a solid support to the soft parts that would have to be transposed for the reconstruction of the mouth and the closure of the cheek and nostrils. Mr. Thos. B. Gunning, a skillful dentist of this city, to whom the case was submitted, generously undertook the execution of this delicate and difficult piece of work. The fixtures which he adapted were made of vulcanite."

Page 38: "On trial the patient found he could wear them constantly with comfort, and could remove and replace them at pleasure."

"The requisite preparation being now completed, it was decided to perform the first operation on the 26th of March, 1863."

Page 40: "Patient experiences no uneasiness from the presence of the artificial fixtures."

Page 51: "In May, 1871, the author visited Burgan at his home in Baltimore. He still wore constantly the same palate plate that had been adapted in March, 1863.

In August, 1873, I was myself in Baltimore with Dr. Gunning; we visited the patient and had the satisfaction of seeing the same plate in use and also found great improvement in the cicatricial lines, which had so softened that the patient experienced more benefit than could have been anticipated from the surgical treatment and mechanical appliances.

This was not a gun shot wound, as Dr. Elliott remarks; why it was brought into this prize essay, shorn of its principal interesting dental facts, unless to mislead, I cannot see.

The other case is that of the late Wm. H. Seward, whom this prize essayist saw at Yokohama six years after treatment; and seven years after this (the patient being dead), he first ventures to put his observations in print; and here it is published and sent out to you that the whole treatment of that case was a failure, and that the fracture of his jaw was quite ununited. Dr. Norman W. Kingsley followed, in what is called a discussion upon the essay on "Gun-shot wounds of the Mouth," but which seems to be simply a *reiteration* of the Essayist's statement. He said, "There was no union of that broken jaw."

I had much to do with the case as an assistant, and saw the patient after union was effected. I must positively say that the statement is untruthful. The case was considered as a successful completion of all that could have been expected, and quite satisfactory to the patient, as numerous letters of the late secretary and others, to Dr. Gunning, attest.

It is with great reluctance I break silence in this matter, and am only induced to do so, by the gross misrepresentation of facts, with which I am fully acquainted, and in regard to which silence would be a criminal neglect of duty.

The result of Dr. Gunning's treatment of Secretary Seward's lower jaw was, that the fracture on the left was united by bony union, while the fracture on the right, which was so gravely complicated by the cuts inflicted by the assassin's knife, that the saliva from the parotid gland discharged through it constantly, was united by fibrous union, which was so strong in October, 1865, when I worked for the Secretary in applying an upper set of teeth, that the lower jaw was used in eating and speaking without difficulty.

I know that Dr. Gunning's report of this case in the *New York Medical Journal* for 1866 is strictly true.

INCIDENTS OF OFFICE PRACTICE.

Dr. C. E. LATIMER: At the last meeting of the Odontological Society, our President spoke of some broaches, manufactured by Johnston Bros. Sometime ago he came to my house and gave me some to try, and I have had one or two dozen since, and find them a very superior article, and being round they never catch or break in the pulp-cavity. He promised to send me some so that I might distribute them to the members of this society. I have a few packages with me this evening and will give them to those who have not used them and are anxious to do so. I took the liberty of forming handles on two in each package, such as I use, by melting a little sealing-wax on the end so as to make a handle by which to rotate it. The temper is drawn in the first place, and then, after barbing, they are re-annealed, so as to give no undue stiffness to the broach, and no danger of breaking. The barbing is admirably done. I wish also to speak of a case that came into my office this morning. A gentleman came in with a central incisor tooth in his hand, and also two pieces of teeth, one broken from the same central incisor mentioned, and another piece from the other central incisor. He told me that his son, a little boy about ten years of age, had fallen down stairs and broken from one-third to one-half of each central incisor squarely across, and striking again after he had broken the teeth, he knocked one of them out. I was very busy at the time, but my patient kindly consented to wait until I had attended to the suffering boy. Taking the tooth in a wet napkin I opened into the pulp cavity, removed the pulp, filled the interior of the tooth with white oxychloride, and as it hardened, removed a little from the apicial foramen, and filled with white guttapercha, excavated from the grinding surface where it was broken off, and filled with gold ; smoothed the end of the tooth nicely. In the meantime, the father had gone home for his son, and by the time I had finished the tooth, they reached the office. I rinsed the cavity, and removing the clot put the tooth in, and held it in place just in line with the lateral incisor, instead of pressing it completely home. The lateral being tender, and rather short, and the cuspid not being in, I could not tie it fast, so I fastened it with Weston's Cement, holding the tooth in position firmly with my finger, passing the cement between the lateral incisor and central, and then covered with varnish. I sent the patient home with a bottle of tincture of myrrh and arnica in equal parts, diluted, to use as a local application to keep down the inflammation. The other tooth having the pulp exposed, I touched with creosote, covering lightly with oxcychloride. I presume that will die. I found it very tender indeed, from the shock ; and it was almost impossible to keep the surroundings dry, so as to cap it, or protect it as securely as I desired. And my other patient was waiting during this operation, and having so little time to spare, I sent my little patient away, telling the father to bring him at any time if it gave him trouble, and made an appointment later on in the week, when I hope to see the case, and treat the exposed pulp, if necessary. I presume it will be impossible to save it alive, projecting from the tooth as it did. I doubt if the application I made to-day would stay on and protect the pulp, so as to keep it alive.

Probably, the pulp will have to come out, and an artificial crown be put on it.

Dr. **Atkinson** : For the encouragement of Dr. Latimer, I will state that I had a little boy, twelve years of age, in the same condition, and I studied his case through several progressive stages of threatening destruction to the pulps. I also feared the pulps would die, but they are living still, and that is very nearly fifteen months ago. So if you persevere, you may still save the pulp alive.

The President, Dr. C. E. **Francis** : I read a case before this Society, some years ago, of a young school-girl in the next house to me, who broke a central incisor, leaving the pulp exposed and projecting. I capped it over in the manner described by Dr. Latimer ; it came off, and I replenished it several times. I at last put on Mack's screw—that held the filling. She wears that filling still. It was a very beautiful case. There is a beautiful deposit of secondary dentine now covering the pulp chamber.

Dr. W. D. **Tenison** : I had a patient that came to me about eighteen months ago with an upper canine with nerve in an exposed condition. I capped it with oxychloride and filled with guttapercha. She came to me a few days ago to have it permanently filled, and in putting in my gold filling I accidentally went through that cap. I immediately removed what gold I had in the tooth and removed the cap, and found the pulp bleeding. I touched it with cresote, and recapped it with Weston's cement, and then put in my gold filling. She has had no trouble whatever with it since. I did not see any deposit of secondary dentine there, although several years ago Dr. Atkinson exhibited a case where secondary dentine had taken place inside a year.

Dr. **Atkinson** : For fear some of the gentlemen should get the impression that it was my opinion that secondary dentine always took place inside of one year, I would state that it depends altogether upon existing circumstances, and the condition of the patient. I have seen cases where secondary dentine formed inside of a few months, while in other cases it required a very much longer time for its formation.

Dr. W. D. **Tenison** : I desire to say that I was requested by Prof. Wm. Todd Helmuth to make an explanation for him before this Society, the purport of which was that he wished to be put right before the dental profession in regard to the published account in the daily papers of the Gardiner case, in which he was made to say that it was a clear case of arsenical poisoning. He wishes the profession to understand that he denies *in toto* that he ever made such a statement. That he was called in to see the case by Dr. Guy ; found the patient in a room that was so offensive as to be hardly bearable, and the patient in a comatose condition ; that he considered there was no necessity of his even making an examination of the case, as Mr. Gardiner could not possibly live but a short time. He also desires to state that this story in regard to the sloughing away of the muscles of the face and neck is incorrect.

Adjourned.

19TH ANNUAL SESSION

OF THE

AMERICAN DENTAL ASSOCIATION,

HELD AT NIAGARA FALLS, AUG. 5TH, 6TH, 7TH AND 8TH, 1879.

2nd DAY—MORNING SESSION.

The President, Dr. H. J. McKILLOPS, called the Association to order at the appointed time.

The following resolutions, which were adopted, were offered by Dr. D. C. McNAUGHTON, of New Jersey:

Resolved, That a committee, consisting of one member of the Association from each State and from the District of Columbia, be appointed by the President to make (with the assistance of the State societies) a complete directory of the dentists of the United States.

Resolved, That the members of the committee be directed to bring the project before their several States and district societies, so that such action may be taken as will rectify the directory each year.

Resolved, That when any State or district society shall present to this Association a list, alphabetically arranged, of dentists within such State or district, then this Association shall, through its Committee on Directory, present to such State or district society all lists of dentists in its possession, and shall continue to exchange the amended lists as long as such shall be continued by the several State and district societies.

REPORT OF SECTIONS.

SECTION II.

Dr. J. N. Crouse, Chairman of the Second Section, reported on Dental Education. We give an abstract of this report.

No subject is more worthy of the attention of the Association than this. A general desire that the educational requirements of candidates for admission to the ranks of the profession shall be increased, is evident among the colleges of the country, and this section would invite the consideration of the Association to the three following propositions:

First.—That all dental colleges shall demand a good degree of efficiency in the English language, as a necessary qualification to the attainment of a degree.

Second.—That colleges shall grant diplomas only to those who have attended two full courses of lectures, excepting such as shall show satisfactory evidence of having entered into practice prior to 1875, and shall have continued in practice until 1885, when they shall be entitled to a degree after having attended one full course of lectures in a duly recognized college.

Third.—That this Association claims the right of supervision over the whole process of dental education as carried on by the various colleges throughout the country.

The English Parliament has recently provided by law that dental students shall pass a preliminary examination before they begin their dental studies. This examination covers English, Latin, Arithmetic Geology, English History, and any one of the following branches: Greek, French, German, Mechanics, etc. To attempt so much in the preparation for entrance to a dental college in this country would, perhaps, not be practicable at this time. Yet, this section is of the opinion that all the colleges should at once make an advance in this direction and require at least a good English education, and, in addition, should require the applicant to have sufficient knowledge of the languages to comprehend the lectures given in the course.

Your committee deem it very desirable that there should be unanimity of action on the part of the colleges in their requirements for graduation. In this matter there is at present great diversity; some requiring five years of practice as equivalent to a full course of lectures. If colleges cannot otherwise agree on this point, this Association should take steps to aid them in uniting on one basis. Your section feels that colleges should not grant diplomas to those who have not attended lectures, and that the policy of allowing five years practice to equal one course of lectures should be abolished.

This brings us to our third proposition, namely, to place colleges and educational institutes, to a certain extent, under the control of this Association. This proposition is brought before this body, at this time, in the full belief that it would render this Association a great aid to the colleges in redeeming themselves. Although the Association has expressed its disapproval of the practice of counting five years practice equal to one course of lectures, believing it to be detrimental to the interest of dental education, and advised the omission of such inducement from their annual announcement of the colleges, yet, as far as this section is aware, none of the colleges, who practiced that policy at that time, have abandoned it. Even more—one of the largest colleges that had previously abandoned the policy objected to, and had publicly acknowledged its intention of respecting the opinion of this Association, now announce that it will consider five years practice equivalent to one course of study, and will give a diploma to all who have so practiced.

This section, therefore, would offer the following resolutions :

Resolved,—That hereafter no dental college shall be entitled to representation in this Association that does not require a good English education as a preliminary qualification for its matriculates, to be ascertained by examination.

Resolved,—That the colleges shall hereafter grant no diplomas, except to those who attend at least two full courses of lectures, except that practitioners of dentistry who present satisfactory evidence of having entered upon practice prior to July 1, 1875, and of having continuously followed the same from that date, shall until July 1, 1885, be entitled to present themselves for examination for the dental degree after attending one course of lectures in a duly recognized dental school.

Resolved,—That no college shall be eligible to representation in this Association that does not, in their next annual announcement, give notice of their adoption of this limit to the conferring of the degree.

It seems to your section that the Association should, by decided voice discourage the multiplication of colleges, which, in their opinion, can but tend to lower rather than raise the standard of dental excellency.

Dr. C. W. Spalding : While agreeing with the principal features of that report, there is one point it contains with which I most emphatically disagree, and that point is the last one stated, that the section regard the establishment of additional dental colleges as tending to lower rather than raise the standard of dental excellency. The general expression in the section was, that we did not want any more dental colleges. I dissented, *in toto*, from that idea. I say we have not got half dental colleges enough. The only point to consider in the establishment of a dental college is its quality. Multiply them as much as you please. Bring them to every man's door. Induce every man who contemplates entering the profession, however poor he may be, to enter a college and go through a course of study. We know very well our ranks are rarely recruited from the wealthy class. We know very well the large majority of candidates for the dental profession are not able to spend much money on their education. Now, what shall we do? Shall we say these gentlemen shall stay at home, and, after a short period of private study, commence practice on their own account? Shall we cut off increased facilities for these gentlemen to educate themselves? I say, No. It is bad policy. If we have a number of noble hearted enthusiastic men who are willing to devote their time to the cause of education, and will establish a college at any cross-roads, shall we say, no, you must not do that; if this young man could not go away to some distant point and sustain himself there and pay his education fees, he shall stay here and do the best he can? The great idea is, that we must make the holding of a dental degree universal throughout the entire country. And more than that, statistics show that not more than one-fourth of those that came into the profession in the year 1878, hold degrees. Seventy-five per cent. of our acquisition last year came into the profession without degrees, and now, the proposition of this section is to diminish these facilities; so in future we will have, perhaps, ten per cent. who will possess degrees. No, gentlemen, if we ever hope to be a profession—if we ever hope to see the day when every man in our ranks shall be an educated man, we have got to extend the facilities for education in every way possible. In no other way can we effect our object. We have noble hearted men among us who are willing to work for nothing for the sake of forwarding this cause, and yet this section expresses the resolution that they shall not be allowed to do so. From this proposition I dissent. I consider it as a step backward which I regret to see this body take, and in that particular I differ very earnestly from the sentiment contained in the report. I have been an advocate of granting degrees to prominent men without attending a course of lectures. Something may be said of providing a way by which reputable gentlemen, who do not hold degrees, may obtain them without going through the loss of time incurred by attending lectures. But I say that no man should hold a degree who has not earned it, and who cannot pass a very thorough, searching, satisfactory examination. As applied to practitioners, if a man could not come up to that standard he should not have a degree. I should not stop to ask where a man obtained his dental education, but first, is he competent?

And if he is, let us give him the benefit thereof. The section has considered the matter of making some provision for that class of men. No very definite proposition has been entertained, except one—that every man who commenced practice previous to 1875, and continued in practice a certain length of time, may, on attending one course of lectures, obtain a degree. Several suggestions have been made, and one suggestion was presented that the examination of such candidates should not be made by the faculty of the college that grants the degree. In that I most heartily concur. I think the examination ought to be made by entirely disinterested parties, and that the fees the candidate pays for his degree should not go to the college granting the degree.

Dr. BOGUE : I don't know but it is permissible for those who have ideas upon this subject to express them, although they may never be put in practice. I feel very much like endorsing all the views expressed by Dr. Spalding. I honor him for contending that the Examining Board should not be under the influence of the faculty giving the diploma ; and it seems to me it cannot be very long before that idea will prevail very much more extensively than it does at present. Any one who has looked carefully at the workings of dental colleges cannot fail to see that the influence exerted by three or four months of intercourse with students, will show itself in the Examining Board. Dr. Spalding asks what we shall do with the young men who would enter into the practice of dentistry through some other door than that of the college ? I think we should pass a State law and keep them out. Hence the multiplication of dental colleges. I look upon it as a necessity and to be regretted ; yet, still a necessity. I fancy they will be weeded out finally. Then, Dr. Spalding has suggested that we make a uniform standard of examination for the attainment of degrees that should be observed by all the colleges throughout the land. I say, amen ! I present these ideas, because I see the far-reaching tendency of that English law lately passed. There may be two or three gentlemen in this room who know the ins and outs of this law ; but to me it seems perfectly plain that the origin of it is the presence of a lot of American dentists in England who, by their lack of education, cause the English graduates of the College of Surgeons to be ashamed. There is a difference between the English professional men practicing dentistry and the American practicing the same, which it is impossible to express. You do not see it upon the surface, but it exists nevertheless, and there is so firm an intention to prevent the ingress into England of American dentists graduated at our private schools without a recognized curiculum, that it has resulted in the passage of that law, and the more you examine it the more you wonder at it. One of the immediate causes that brought it about was this : A number of students would attend one course of lectures in the College of Surgeons, then they would come over here and graduate. They would return home legally doctors, while their qualifications for practice and social standing were far below those of the men who had stayed at home and passed through a course far more severe, and an examination far more searching than ours. That state of things could not exist long, and the directors of the college saw perfectly well the door must be shut or they would go up ; and, therefore, they have shut the door against the graduates of most American colleges, and so keep their students at home. The moment they were able to keep their students at home they were able to raise the standard of qualification, and did. It does not affect the men who are practicing now, but it does prevent men in future who have not their degree from an English college, or one recognized by the Board, from practicing dentistry in England for pay. Now, what they have done there we can do here ; and I foresee that with the same degree of earnestness and intelligence that has characterized our colleges during the past few years, it will not be long before there will be State laws passed regulating this matter, and we shall progress in this direction until it may be quite possible for a course in our dental colleges to be established sufficiently long and careful to turn out graduates that do not fail on every question that is given them.

Dr. C. S. STOCKTON : I deem this subject one of the very greatest importance that can come before this Association. Every where when you meet dentists, the theme is, how shall we educate the profession of dentistry ? What are the requirements to enter our profession ? You hear that discussed whenever a few dentists meet together. And I had thought the best thing was to have only a few large dental colleges in the land. I was in sympathy with the resolutions of the section, but I must confess, that since Dr. Spalding has spoken, I have somewhat changed my mind. There are a great many young men coming into our profession through State Boards. These gentlemen of the Examining Boards certainly cannot be so well qualified to give a certificate as those who have been long teaching in the colleges ; and I therefore have come to this conclusion, that if I had my way I would say to the young men, you must go to dental college and take your diploma ; but I would not care whether you stayed there two years or one day ; if you are qualified to practice dentistry the college ought to know it: the profession ought to know it, and they do know it; and if you are qualified to practice dentistry they will give you their certificate, and let the examination be such that the degree, when once given, would never after be questioned. Make your standard so high, gentlemen of the college, and your examination so thorough, that when men pass your Board all will agree that it is no matter how they got their knowledge, whether by reading with you or with some one else, or alone in their own study; then give them a right to enter the profession. I don't see any other way of getting out of this difficulty. We have our Examining Boards now, almost in every State, which are often times composed of gentlemen who by circumstances are not qualified to make the examination. And hence, I say, if you open the door of dental colleges where young men can get their degree, and make it so they can get it without large expense, and yet have the examination so high, not only in that which appertains to dentistry, but make your other requirements in the English education equally high, it will be a benefit to the young men. We all know that those who have a previous education take rank among us over those who have not. So, if you make your examinations thorough, not only in dentistry, but in all the branches in which you would have gentlemen proficient, whom you expected to have associated with you as dentists, I believe it will be the grand solution of this question we have before us to-day.

Dr. H. A. SMITH: It is estimated there are in the United States twelve thousand practicing dentists; those who have a local habitation and name. Now, I think it is a proper estimate that with these twelve thousand dentists there are at least from eighteen hundred to two thousand students who contemplate practicing dentistry. The matriculation last year was about 672 in all the colleges, Now, it is interesting to know where they come from. I cannot give the statistics as to where they come from, but I can as to where the graduates come from. Sixteen of the States graduated 157; the other States 52; giving 209 in all the colleges: there were foreign graduates 33, making 242. Now, if all the dental students went to college all the colleges would have about 200; but as we only have about one-third who attend college, the present number of colleges are impoverished for want of students. But only one-third of the students attend college at all.

Dr. J. N. CROUSE: I would like to ask how you get at the number of dental students there are in the United States? I would like to ask you how long it would take to multiply, and, instead of having twelve thousand have fifty thousand practitioners, at your rate of graduation every year?

Dr. Shepard: What year does those statistics cover?

Dr. Smith: Last year. The large bulk of students came from very few States. Pennsylvania had 39: Ohio, 24; New York, 18; Massachusetts, 17; Maryland, 15. These five States had more than one-half the number of graduates.

Dr. J. N. Crouse: This, in my opinion, is a step that all colleges can well afford to take, and I think this Association, by this resolution, can assist them. The only difficulty about it is in making the attempt; and we are in hopes in our section, by the passage of this resolution, to effect that movement I don't think that resolution needs any discussion.

Dr. J. G. W. Werner, Boston, Mass.: I have listened very attentively to this discussion. Sociality and policy have close resemblance, and move in the same course of development. This is a Republican form of government. We consider here that no laws are necessary to protect medicine or dentistry. European countries are not republican, with the exception of one or two. It is considered there that dentistry is a part of medicine; in America it is not so considered. In Europe it is considered necessary to protect the medical and dental professions, consequently they have fewer colleges, and higher standards. As long as we have no laws in America it is useless to talk about fewer colleges and higher standards. As long as you have no laws to protect your profession, fewer colleges and higher standards will be a failure.

Dr. Atkinson: I suppose I will have to reiterate that this is a very important subject, indeed. We have sixty-five medical colleges chartered, which graduate medical students in America every year. Are there five of them that are fit to graduate medical men? We have thirteen dental colleges that graduate men for the practice of dentistry: we are trying to get at some means whereby to select from the number of pupils that present themselves as matriculants to the various colleges of dentistry, so that we can discriminate and secure thereby true and upright men, who shall be ornaments to our profession. How shall we do this, is the question before us. That is the one thought of every individual that has spoken, and I agree with all the speakers in a sense, and disagree with them in a certain sense, and that is a sense of the disabilities we have inherited from the system of our general education, the results of which are to be seen daily. The reason that dentistry is set out as a distinct profession is because medical men neglect this department of the human anatomy, namely, the masticatory apparatus : and that is the way that dental institutions came into existence. Dr. C. A. Harris went to the medical colleges in Philadelphia, and desired that they should establish dental departments, but they refused to do so, and turned the cold shoulder upon it because they had not the sense to recognize its importance. If I were required to make No. 1 dentists of five hundred young men of good natural abilities, I would prefer to have them without a D. D., A. M., M. D., or D. D.S. attached to their names, either by the concurrence of some college that had favored them with that mark, or the concurrence of some faculty that had examined and graduated them. I say again I would prefer to have them without these degrees, but just take them green and fresh, even without their alphabet if need be, and in five years make them better scientists and better operators than those men who have esteemed your degrees as a qualifying condition. They have held to what the degree says, and not what it meant, because they did not know what it meant. Just let me call your attention to every order in nature, and see if chaotification does precede every kind of new form of life. We have to get all the arch nonsense that has been called the science of protoplasm out of it, and make every one who sees it convinced of its appropriate usefulness. I don't say that we shall be any more honest than our ancestors have been, but we shall be more illuminated, we shall have better light by which to direct our steps in the performance of work : and we will be able to justify our acts, in our consciences, if we will forget the old methods and begin to study together, teacher, and pupil, conversationally, and not in lectures. The human mind cannot think a lie : and if we would study human philosophy a little better, we would be better able to determine just how to classify and impart the various methods of our instructions. It has been said that we have had no report on chemistry. Well, out of deference to the science of chemistry, I hope we never will have a report on it if we have to take the doctrines represented by so-called chemists. We must so understand these great principles as to enable us to be teachers that shall accomodate ourselves so to the pupils as to be sought after for places of trust and responsibility, and not have, as now is the case, every man seeking the position for the advantages resulting therefrom. I know what I say, I have seen what I speak of : and we have no college to-day filled by men who are preeminently fitted to fill the positions that are occupied by the faculties in the various institutions.

W. C. Barrett: Some of Dr. Atkinson's statements seem to me peculiarly loose and unconsidered. If I understand him aright, he says that he would abolish all education whatever, unless it be of a definite character. It seems to me that instead of this we should make the most of what we have, and strive only to arrive at a higher standard. The question is, whether we shall obtain the greatest amount of good by the establishment of a preliminary examination, or by the abolition of all standards whatever. The first resolution provides that such preliminary exhibition shall be obligatory, but Dr. Atkinson declares that he would prefer no education at all. Another of his loose assertions is, that there is not a man now occupying such a position who is fully qualified to fill a chair in any dental college. I understand him better than to believe he means any personal reflection upon the teachers of to-day. Strictly and technically speaking, it may be true that no one possesses the qualifications which would be desirable, and it is in this view that he made the assertion, for he is a man of too kind and fraternal a spirit to wantonly offend even the least of us. Still, the assertion is a loose one, and should not have been made. If we have not those who are in all things perfectly qualified, we must make the most of those whom we have, and cut our garment according to the cloth, waiting that millenial day when we can hope for better things. Dr. Atkinson is a born protestant—or protestor. I suppose, if he is ever happy enough to enter the Golden Gate of Paradise, he will protest that it is not high or wide enough, or is too high and wide, for it is his nature to be critical. For the proper appreciation, comprehension and digestion of the truths and principles that are taught in dental colleges, some preliminary English education is absolutely essential, and hence the necessity for some preliminary examination to determine the possession of such knowledge. But for the attainment of proper professional status, are we to leave the doors of our dental colleges ajar only, and admit but the favored few? By no means. It is the fundamental principle of American institutions, that we should carry the opportunity for education to every one's door. Start a college at every four corners, if it be practicable, premising only that the teaching shall be thorough and sufficient. Not colleges for the manufacture of diplomas, but for the EDUCATION of young men, and if such an institution cannot support itself, let it go to the wall. The law of supply and demand will regulate all that. In my individual opinion, the tendency of education is towards the teaching of dentistry in connection with that of medicine, under university charters. I am not saying whether or not this is advisable, but I believe the tendency is that way. According to the showing of some of the statistics, read here today, I would not encourage the establishment of dental colleges in the City of Chicago, in the State of Illinois, which, in a year, in all the colleges, had but *three* graduates. What kind of a showing is that? with so much of intelligence, so many orators who can so eloquently speak on the subject of dental education, to have a totality of three graduates in dental science in a year. With what kind of cheek can a resident of that city and State, come here and demand that the opportunities for securing a professional education shall be restricted. It is monumental. Illinois dentists have not done their duty at home, however great may be their zeal here. They may talk very loud in convention, or in their offices, but the indications are that they are recreant to the duty which they owe to their profession, and I would recommend that they go home and sweep their own doorsteps clean, before they come here and denounce us for not elevating the standard of education, when it is already at a point evidently beyond the reach of their own students.

Dr. T. C. Stellwagen: In considering this subject of dental education, I take it for granted that there is not a man within the reach of my voice but is desirous of bringing about the highest possible standard of education. It is only by elevating ourselves that we can elevate our profession. We have had none of that nonsensical talk here about elevating the public, and teaching the public. The public will learn very readily of what material and stuff the dental profession is made, and it is not necessary for us to go out and teach it. We must put ourselves so high individually in the standard of education, that if possible every one who comes in contact with us will acknowledge that to be a dentist is an honorable calling, and, I don't think, we will be at any trouble about having laws to protect, and laws to govern. But as to how this is to be done, of course, there is a vast difference of opinion. There is a difficulty at the very outset as to what sort of material we shall make dentists out of—what sort of men we shall admit in dental colleges; and, on this point, I take exception to the narrow-minded view that a man must have an English education. I have been astonished at the wonderful rapidity with which German students have picked up the English language in our own colleges. When a man understands the principles of philology that govern and underlie the expression of thought, and its transmission from one to another, he can quickly grasp a new language. Hence, I think, for us to sit down here, and claim that a man must be educated in the English alone, is an assumption that will narrow down and contract the profession. Is it necessary that a man must understand the English language to be a dentist? There is, furthermore, a natural language of signs which enable two men, not speaking the same language, to have scientific intercourse with each other. A learned German, or Frenchman, would understand most of our technical terms. Education is carried on by means of illustrations, and other methods; so it is astonishing how readily one not only learns the science of dentistry, at the same time he is learning the English language, by using the descriptions and illustrations before him. So, I for one, should move that the first resolution be laid upon the table. The difficulty of establishing a certain point of qualification in education is very great. We should know that there is a very great variety of education, and great difference in the power of thought that assists all education, and it certainly is too early for us here to establish any such line of demarkation. If we were to pass this resolution, the very men who have read some of our most able essays, and made some of the very best reports in our committees, or sections, in this very meeting, would not be now ready to enter a college, or pass an examination.

Now, with regard to diplomas to those who are already in practice. It comes down to this fact—the examination of a man who already is in practice. Mr. President, how long does it take to examine a man and decide whether he is a practitioner or fit to become a practitioner of dentistry? I hold it cannot be done in the few days, or weeks or months that some of our gentlemen here seem to think it can be done. There is no man who can tell, at a glance, whether five months intercourse with a perfectly ignorant man, who has never looked into a mouth, will render him fit to practice dentistry. But we have among those who come to pass examinations as dentists intelligences of the very highest order; and the question is, how long must you be associated with such men to know whether they are able to practice dentistry? Are you willing to pass him out with your endorsement if you have only had, perhaps, fifteen minutes conversation with him in the way of examination? If you do, you open the door to one of the most dangerous means for undermining education that you can possibly open. We cannot take men and in a few days examine them. It takes months as they sit in the class and answer the questions put by the examiners to judge of the manly character and pride that alone wins distinction which decides whether men are able to practice dentistry. It would be most desirable if we could have a board of men who were paid so highly that we could afford to get the very highest talent to make these examinations, and who could afford to spend enough days of their lives every year to make a thorough examination of those who come before them.

In the matter of the multiplication of colleges. I suggest the word *anxiety* rather than "*regret*," because we cannot regret the multiplication of colleges until we see that it is doing harm. But we can have anxiety caused by the multiplication of colleges from the fact that there is not sufficient stimulus to support a number of colleges. I don't mean dirty dollars, I mean stimulus—that which stimulates men to work. There are others who work better, perhaps, alone; but what stimulates a teacher is to haye a class of attentive, intelligent, well-meaning young men, desirous of learning. Now then, sir, that is what, as I understand it, this Association should fear—the anxiety lest by an overplus of colleges, the standard of education may be lowered so as to coax and persuade the unintelligent to enter the colleges, and in that way get a class. That, I think, was what was meant by the committee, though it was not expressed. The question may be asked, does any college shut out worthy men for the want of money? We have had it said that the spreading of colleges broadcast over the land was necessary in order that they should have plenty of students, and many could not afford to come a great distance, or spend much money. I have had some experience among men as students, and I have found that those who pay for what they get, and work for the money to pay for it, are generally those that become the most honorable members of our profession. But there are others who beg their way through college; they beg their way into their profession; they beg their way through their profession, and are beggars from the very beginning to the end. I have seen very few of these men, that had to beg their way, that ever made anything. It is the man who has the energy, and says, "I have not the money, I will sign a note, or give you promise to pay, I don't want it for nothing, I will pay for what I get." It is those men that make their mark, and they can be accommodated. We don't want money. I don't think any school in the country wants money alone. We want an acknowledgment. We don't take the money as an equivalent for services, we take it as an honorarium for services rendered.

To be Continued

ERRATUM.

By request of Dr. E. A. Bogue we insert the following: "I wish to make a correction of my remarks as they appear upon page 383 of the October number of the *Miscellany*. What I meant to say was this: 'In reply to the denunciations of the extracting places, I will say, I will send my patients there when it becomes necessary, but they shall go there with my written directions as to what should be done, and those directions will be followed, because that patient is under my hands.'

'These men, with their practices, *may be* just as unworthy as they have been represented here, etc.'"

"Then, following Dr. Atkinson, I intended to say: 'I hope, if Dr. Atkinson has had that sort of experience, he will never send or allow one of his patients to go into one of these extracting places—Colton Institute or anywhere else. After seeing such effects as he describes, I should not send another one, but should take another class of people altogether for my extracting.'"

To the above remarks I should like to add that, "as it is, I believe I I have never had a blunder made when the patient went from my hands directly to the extractor, although I know of a number of mistakes that have occurred when the patient went of his own accord."

BOOKS RECEIVED:

"The Origin and Formation of the Dental Follicle."

By Drs. Ch. Le Gros and E. Magitot.

Translated by M. S. Dean. Including all the Illustrations of the French work, with a number of additional illustrations, selected and original.

Chicago: Jansen, McClure & Co., 1880.

"Practical Information about the Teeth."

Price, 25 Cents.

A Book for the People. By Arthur Holbrook, D.D.S.

Milwaukee: Published by the Wisconsin State Dental Society. 1879.

JOHNSTONS'

Dental Miscellany.

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BACTERIA.

By F. Y. Clark, M.D., D.D.S., of Savannah, Ga.

Read before the Conn. Valley Dental Society.

The cause of dental caries by most of our best authors and practitioners of the present day is thought to be chemical action. It is said, as you all know, that acids taken into the mouth and formed by fermentation act on tooth-structure, thus producing caries. Now, this is well, as far as it goes, but it does not go far enough. How can a mite of food no larger than a grain of sand, undisturbed in a fissure, generate acid sufficiently strong to penetrate so dense a substance as the enamel? What is carious dentine? How does it differ from sound tooth-structure? Is it the same when detached from, as when connected with, sound dentine? Will a layer when taken from a tooth and placed under a filling act on the living substance the same as when allowed to remain partially connected with the living? Why are we so particular in the removal of every mite of decay from a cavity before filling? You say because if the minutest mite is left, in the course of time it will increase and surround the filling Would a mite when detached from sound dentine, or any equally objectionable substance, do this? You answer, no? What contagious agent, then, is there in this mite of decay to do this? How does the same agent, acid, produce all the different shades—the black, the white, the yellow, and so on. We are told that acetic fermentation combining with the lime of the tooth forms new agents, but what these agents are, or how they act on the tooth-structure, we are given but a vague idea of, or left to work it out in our own way.

In 1871, I attempted to answer a few of these questions in an essay, read before the Southern States Dental Association, and published in the transactions of that body, taking the ground in this essay that caries was the work of bacteria. Two years following, this subject came up again at the Baltimore meeting of that body, many of our most prominent men taking part in the discussion. Although up to the time of these meetings I had spent some time with the microscope and otherwise, and felt quite sure as to the theory, I was not half as well prepared to prove it as now. It was thought by a few I had mistaken the cause for the effect, and that the bacteria mentioned were the hyoids abbucus or vibrions. Be this as it may, it does not vitiate their presence or importance, as it is not so much a question of species as behavior and action, as will be shown further on. Although I believe the bacteria referred to are not those seen in the saliva and mucus, yet I am not prepared to assert they are not produced by these by some change they undergo when introduced into living organisms. The cause of bacteria in the saliva and tartar of the teeth, no one has as yet satisfactorily explained. They may yet turn out to be the real cause of salivary calculus, for they are found in abundance in all mouths where this rapidly forms. And again, as to outward evidence, we know every crustaecous earth or rock, which much resembles tartar, abounds with their bodies.

Our best microscopes are not sufficiently powerful to bring into view many of the smaller bacteria of the mouth, or even to positively separate and classify those seen. Therefore, as yet their action and behavior are the best criteria we have as to their good or evil. It is generally understood by all who have given the subject microscopic attention, that vinous, acetic and putrefactive fermentation is brought on by three sets of bacteria, as with the change of each ferment there is an apparent change of bacteria. The first set are not found in the second, in the third or putrefactive ferment. Have we not, therefore, reason to believe they inaugurate and dispose of each other.

It is well known by wine and beer manufacturers that different wines and beers require different ferments. If bacteria have the power to increase by budding, their species become mixed. In the culture of fruit the most of us know what changes can be brought about by grafting or budding. In Florida, it is a common thing to see the sour, the sweet, the bitter-sweet, and, in fact, the whole family of oranges on one tree.

All the variety of grapes in this country are the products of three indigenous vines—the scuppermong, the fox, and muscodine. It may be so with bacteria. Certainly, their mode of propagation, according to our best authorities, is not positively known, no farther than they increase in the unsexual way by fissation.

Of all the different species described by Cohn, Ehrenberg, Dujardin, and others high in authority, I have met with no description of what I will venture to term dental bacteria. This, no doubt, is owing to a lack of investigation in this direction, and forcibly shows the necessity of organized action by those concerned. Carious dentine, if properly prepared, and carefully examined by a strong microscope, will be found full of bacteria. They may or may not, originate from chemical action ; or, in other words, from the infusoria of ferment. Dental bacteria may be easily mistaken for vibrio regula, or more easily still for those described by Cohn, under the head of genus spirochate, or spirachete plicatilis. I have no doubt further investigation will class them with the same family. They have almost an imperceptible screw-like motion, and, I think, of different shades. They are of a half U shape, are from one and a half to three micrometers long, by about one-half wide. Their action is increased by acids, without which they appear dormant and lifeless. They are never seen in sound dentine—sometimes in the mucus and tartar of the teeth. The vibrio regula and spirochete plicatilis are never found in underlayers of carious dentine, which fact of itself separates dental bacteria from the two former. Ferdinand Cohn, in his able work on this subject, a part of which has been lately translated by Dr. James J. Waring of Savannah, and Ernest Detmold, from which I quote, says bacteria are non-chlorophyl cells, globular, round, oval cylindrical or twisted, which multiply by fissation, and which vegetate either singly or in groups. * * * * * The coloring of bacteria is due to pigments in the protoplasm. * * * * The bacteria which produces red, yellow, orange, blue, and other pigments may hardly be told apart, and yet plant them and they will always give the same pigments. * * * * That bacteria have a cell membrane is proven by their behavior when exposed to chemical reagents. They are not disturbed by potash, ammonia, or acids. This is attributable, not to the free and exposed condition of the protoplasm, but to the cell membrane. In like manner, this cell membrane resists putrefaction for an extraordinary long time. * * * "It is interesting to watch a swarm of bacteria, both of the rod and spiral kind, when they gather in innumerable masses in the midst of a fluid, in search of a richer food, or on the surface of the same, hungering for acids." They can, says another eminent authority, "Initiate putrefaction in what is dead, and on the other hand initiate febril and inflammatory action in what is living."

That bacteria is the true cause of fermentation, febrile action and putrefaction mycologists have no doubt, as they are ever present when and wherever one or the other is going on. One tribe follows another, and sometimes so rapidly that they become food for each other, as has been proven by there being seen in the stomach of successors. That which causes fermentation comes from the air, as sterilized fluids kept for months and years, when exposed to the air undergo decomposition. It was believed by many at one time that as all bacteria cease to exist at a boiling or freezing temperature, and were reproduced in fluids subjected to these temperatures, without air exposure, that they were self-organisms. This, if true, would establish the doctrine of metamorphosis, do away with the theory of creation, and admit abrogenisis able to upset the whole system of worlds. It was found on further investigation, however, that although bacteria are destroyed at these temperatures, their cells or spores are not, and that to destroy these germs of life it will take about double the above temperature. The germ theory of disease is now so well established in medicine, that little or nothing is heard of the chemical phenomena. It has been demonstrated that bacteria are able to penetrate any cell, tissue or vessel of the human body.

I may now again reasonably put the question : "What is carious dentine? Can it be produced by chemical agency, independent of organic action." Most certainly not. The bundle of microscopic evidence against this, to say nothing of the every-day facts of actual practice, is overwhelming. In 1870, I filled several teeth in the mouths of different patients, to learn, if possible, how far, or if at all, carious dentine was infectious. In the tooth of one mouth I made two cavities. Into the first cavity a layer of carious dentine, taken from another tooth in the same mouth, was inserted, and then the cavity filled with gold with the usual care. Into the second cavity a like layer from the same carious tooth, which had been soaked in carbolic acid for about an hour, was placed, and the hole then filled the same as the first. Into the third cavity of another tooth in the same mouth was put a third layer taken from a tooth extracted a year previous. At the end of six months there was no change. After eighteen months a blue tinge was visible around filling No. 1, but no apparent change in the others. At the end of two years No. 1 had to be refilled to save the tooth. The other fillings looked about the same as when filled. Now, was it acid in the layer of carious dentine that caused decay, or was it the infectious bacteria? Why, as was asked before, are we so careful in removing caries before filling? If it is true, as would seem from experiment on No. 2, that caries can be made innocuous, why not convert it into a natural capping for the pulp, instead of removing, so as to endanger exposure or trouble?

You all know, many years ago amalgam composed of mercury and coin silver was extensively used, and mostly by men who knew little or nothing of dentistry, and made little or no attempt to remove decay. I, like many others, considered it my duty to replace such fillings with gold, and was often puzzled to find the walls as black as jet and hard as flint. Looking back from our present stand-point, the calcification of dentine in those teeth is easily explained. Mercury is extensively used in all skin diseases for the destruction of parasitic life. It is so well known in this respect, that good housekeepers use it for the destruction of all manner of bugs. Thus it acts on infected dentine and explains the calcification sometimes seen under old mercury fillings. Nicotine acts on the dentine of teeth the same as mercury. Teeth are frequently seen in the mouths of old tobacco-chewers where the enamel is worn away and dentine smooth and calcified. The places where caries attack gives further evidence of bacteria action instead of chemical. We don't remember ever seeing an inferior incisor attacked on the lingual surface, and but few inferior molars and bicuspids. Now and then the superior molars are attacked on the palatine surface, but generally by fissures extending from the crowns. The superior incisors are frequently defective on the palatine surface, owing mostly to their formation. The most frequent locality of caries is on the crown surfaces of the molars and bicuspids. The next in order are the approximal surfaces, then the buccal. From this we can see that owing to the continued brushing of the tongue and flow of saliva on lingual sides, that bacteria secures no foothold or place of attack, consequently carries cannot take place. On the crown surfaces the case is very different. In all the molar and bicuspid teeth there are little pits and fissures where the enamel is thin, offering a plac of deposit or laboratory where fermentation begins, and where denta bacteria are generated.

In conclusion, I would say, in handling this subject, I have endeavored to confine myself as much as possible to the end in view, so as not encumber the mind with outside matters, but owing to nomenclature, the difference of opinions of mycologists, the almost innumerable species of bacteria named by some, and frequently the same described under different names, I have found the task perplexing. Some writers speak of infusoria, rhizopods, vibriones, microcosms, animalcules, monads, and so on, all under the same head; while others again class and separate with names almost unpronounceable and unknown. Thus the investigator is met at every turn by contradiction.

The rhizopods belong to the root-footed tribe, and most of earthy formations are composed of their dead bodies. They belong to, or are generally found, in salt water. They have had more to do with the building of earthly structures than man himself. In some countries every hill and mountain is more or less composed of their remains. Every sea-beat shore and crustatious formation gives ample evidence through their presence of a once sea-deluged continent.

The infusoria differ from rhizopods as fresh water differs from salt water fish. They belong to fresh water, and are to be found in all rivers, lakes, ponds, and in masses in all stagnant waters. It is a mistake that they are the life of waters, that no water can be pure where they are not. The very reverse is the fact. Therefore, questionable water should be examined microscopically before using. This little test would prevent much sickness, and, no doubt, frequently epidemics. Again, these same organisms are the natural scavengers of earth, and, without them, this world would not be habitable, for the stench of every dead animal, fruit, and vegetable, from the creation until now, would be floating about us. It is a part of their business, by fermentation and otherwise, to convert all unhealthy into healthy matter. But while they serve us thus, if they are inhaled into the mouth they become at once dangerous. For in living organisms they are not the same. By some process they are changed. The little homes ready prepared for them in and around the teeth are willingly accepted, and with change of air, home, and food, they receive new energy, and go to work in good earnest.

"LATENT ALVEOLAR ABSCESS, AND ITS TREATMENT."

BY F. E. HOWARD, M.D.S., GENESEO, N. Y.

In the great majority of cases, in the treatment of pulpless teeth, we have a "latent abscess" to contend with.

By this we mean those cases which have not fully developed, where a discharge of pus has taken place.

Having occasioned no inconvenience or alarm with the patient, as they remain hidden, concealed in secret.

"It is the remnant of the product of inflammatory action that has been set up after the death of the pulp, about the end of the root, reduced to a scarlet tissue, simply inclosing in the interior the products of inflammatory action." ready at a favorable time to break forth upon the slightest provocation, and demonstrate to the possessor that it was lucky (if not best) that this "volcano" had not belched forth sooner, and that he had better make immediate application to a dentist. These "latent abscesses" may remain dormant for years.

In some cases, the pulps of these teeth succumb apparently without a struggle, and never give the patient any warning of its departure from apparent health to that paralyzed, mummified, or putrescent condition that we often find them in : and the diagnosis is given by the dentist, unsolicited by the patient, they often not being aware of its pathological change.

Upon tapping the pulp-chamber of these teeth, when the pulp has died from inflammatory causes, we generally find the contents of the canals in a "putrescent" condition, and consequently in a very foul state, emitting gases that "impregnate the whole room" with a disagreeable odor ; and, in some cases, the stench is almost insufferable !

Teeth in this condition, and of long standing, are oftentimes more or less "discolored," and assume different shades of color—blue, red, green, brown, or muddy in appearance, according to the character of the contents of the canals.

The foul matter of the pulp is infiltrated into the "tubuli," or the organic "element" of the tooth participates in the *general condition* or character of the pulp, which causes discoloration.

If the discoloration has extended so far as not to be overcome in the main by mechanical means, we must take measures to bleach and improve, or restore to the organ its lost beauty or lifelike appearance.

In many cases, the "mechanical" method of bleaching is resorted to with success, by the removal of a certain amount of disorganized tooth structure, and "lining" the cavity with some of the white "plastic cements," will be all that is necessary. Under other circumstances, it is necessary to resort to the other method of bleaching: by "chemical," or medicinal means. And here no one remedy will answer in all cases,—an acid may be required in some cases, an alkali in others.

When the tooth is discolored by "iron," or decomposed blood forced in the tubuli toward the periphery by "inflammatory pressure," which is usually indicated by blue, red, or a greenish cast, oxalic acid is one of the best remedies used.

When it is exhibited in that other class, by infiltration of the contents of the canals with more thoroughly disorganized pulp tissue, usually exhibited by the brown or muddy colors, these are best overcome by "chlorine." Chloride of lime is one of the best of these, chloride of sodium is another, spirits of camphor, alum, soda, chalk, and a long list of other remedies are often used with success, according to the condition indicated.

By a correct diagnosis of the case, as to what the discoloration "arises from," we will be able to combat with it successfully.

When these teeth are not decayed, the pulp-chamber should be entered from that quarter that will best give us access to the roots—usually in direct line with the "axis" of the tooth.

And when decayed, it is often best to fill the cavity, and tap the pulp-chamber at another quarter. For the successful treatment of these cases depends much upon the accessibility to the canals.

After the proper removal of the contents and thorough treatment with disinfectants, the "foramen" must be *perfectly filled* before the remedies are used for the purpose of bleaching.

In some of these cases the pulp has died spontaneously, and the only cause to which we can attribute its death is lack of nutrition.

Such we seldom find in cases of good constitutions, but generally with those subjects of "scrofula diathesis," where the vital force is feeble.—However, this may result from "protracted" illness.

In those cases where the pulps are mummified, or partly so, the contents of the canals is often of a "sour odor," and has made but little change in the general appearance of the tooth. This "immediate" condition seldom affecting the organ by way of discoloration, and it is sometimes quite difficult to determine the death of pulp by the general appearance of the tooth.

In the treatment of this latter class of teeth, protracted medicating is seldom necessary, the simple removal of the disorganized pulp tissue, disinfecting thoroughly (in many cases a few minutes will suffice), and perfectly filling the root.

This is best accomplished with some antiseptic filling, as the operation is more thoroughly done, and after-trouble less likely to supervene.

Oxychloride of zinc, conducted with zephyr to the apex will leave the tooth in a condition with little danger of future (at least lasting) trouble.

If the roots are tortuous, and we are unable to fill to the extreme end, the antiseptic filling is the best material to have in proximity with disorganized tissue, and a chronic alveolar abscess less likely to be established.

When the operation is completed and the patient not accessible to office, the surest safeguard against periosteal difficulty, true abscess or possible necrosis, is to make free incision through the socket to the point of the root, slitting the peridentium toward the crown of the tooth for one-third ($\frac{1}{3}$) of its length of root.

By this method you enter the latent abscess (if such exist), which should be syringed out with tepid water, and carbolic acid applied, which lessens the likelihood of pus formation, or reduces the supply, cauterizes the cut surface and keeps the wound open long enough to allow any inflammatory condition vent, and time to subside.

For if, in the treatment of the root, you have passed through the foramen, and "ingress of oxygen" has occurred, it will in all probability be the spark that will light the inflammatory brand, which will result in exciting the pyogenic membrane to secrete more pus than nature can dispose of by absorption ; and if the precaution, as mentioned, has not been taken, a true abscess will be the result.

If the root has been filled successfully to the apex, this is only a temporary condition, and, after the evacuation of pus, a healthy condition will be established and end the trouble.

If you have not gone through the root in the operation, or oxygen has not been admitted, the "latent abscess" may not be excited to any active condition, and if the patient is so situated that he can make immediate application at the first approach of trouble, the *lancing* may be omitted, as in all cases it would not be necessary.

But if, on the contrary, the patient is out of town and can't make application at the proper time (at the first stage of periostitis), this method will often avoid a swelled face, and a week of suffering.

HARVARD DENTAL SCHOOL.—Dr. L. D. Shepard, of Boston, has been elected to the chair of Operative Dentistry in the Harvard Dental School, recently made vacant by the resignation of Dr. G. T. Moffatt.

TRANSACTIONS

OF THE

ODONTOLOGICAL SOCIETY,

OF GREAT BRITAIN.

Ordinary Monthly Meeting, November 3d, 1879.

Edwin Saunders, Esq., President, in the Chair.

The Minutes of the previous Meeting having been read and confirmed,

The President said he was sorry that the hopes he had held out at the last meeting that the members would hear that evening a paper by Professor Flower could not be fulfilled. He hoped, however, that it was only a pleasure postponed, and that nothing would occur to prevent Professor Flower from reading his paper at the December meeting.

The following gentlemen were then separately ballotted for: they were all unanimously elected:—

Robert Waller, Cairo, Corresponding Member.

Chas. Jas. Noble, L.D.S., R.C.S.E., 1 Drayton Terrace, South Kensington, Resident.

Thos. Clements, 2 Colville Road, Bayswater, Resident.

The President announced that the following gentlemen had been duly nominated, and would be ballotted for at the next meeting:—

George W. Parkinson, M.R.C.S.E., 36 Sackville Street, London, Resident.

Francis Ewbank, M.R.C.S., L.S.A., Harvard College, U. S., 19 Savile Row, Resident.

Adam Taylor, Indian Army, Medical Department, Civil Surgeon, Peshawur, India, Non-resident.

Mr. Chas. Tomes announced that he had received from Mr. Mummery two skulls of Australian blacks which had been sent over by Mr. Ridding, of Sidney, N.S.W., for presentation to the museum. Also, that two specimens of gemmated teeth had been presented by Mr. Huet.

Mr. Coleman then exhibited an odontome which had been sent to him by Mr. Edward Fothergill, of Newcastle, for presentation to the museum. The case had been briefly reported in the June number of the *British Journal of Dental Science* as one of "Cystic disease of the Upper Maxilla," but a more careful examination of the specimen showed it to be what he had stated, an odontome belonging to either the third or fourth of Broca's divisions—he thought it would come under the fourth class—odontomes radiculaires. The patient was a girl, thirteen years of age, whose teeth from the left central to the first bicuspid of the same side were absent, whilst the alveolus above this vacant space was bulged out by a firm tumor perforated by several openings through which fetid pus was discharged ; by means of a probe the crown of an impacted canine could be distinguished. This was removed with a pair of strong stump forceps, and with it came away a "bony cyst" of considerable size. The patient was, of course, greatly benefitted by the operation.

The following communication was then made by C. S. Tomes, Esq., M.A., F.R.S..

ON CERTAIN CONDITIONS OF DEAD TEETH.

The treatment of dead teeth is, in the hands of most of us, at best, uncertain ; and although there are to be found practitioners who in all sincerity aver that they obtain perfectly satisfactory results with them, nevertheless when one finds these same persons spending much time and trouble over the confessedly uncertain operations of capping the pulp, &c., one cannot but think that some form of enthusiasm has blunted the dispassionate scientific accuracy of their observing powers. The occurrence of one or two instructive failures in my own practice has suggested that, although I have nothing new to put forward, it would be worth while to take stock of our actual solid knowledge upon the subject, so as to realize what is fact and what is conjecture, and thus have a better standpoint from which to speculate upon the causes of non-success.

The problem is how best to get the organism to tolerate a partially devitalized body in continuity with it. To realize the nature of the problem we may fairly look for light to the structure of healthy teeth, and not in man alone ; and also to any fair analogies that can be drawn from other parts of the body.

The most highly-organized parts of the body, those most alive, so to speak, are always protected by being buried away in its interior ; external parts, subject to the changes of contact with the outside world, are protected by tissues less fully alive. Thus we are coated over with an epithelium, the deep portions of which are active cells, soft and full o plasm : the superficial layers are horny and all but dead, and as they become quite dead, or perhaps after in their dead condition they have remained a short time adherent, they are shed off. Other instances might be adduced, but this one will suffice to indicate the meaning, which is this : our highly organized live bodies are made fit to encounter the world by being coated with successive layers of less highly organized tissues, till at last in the outermost epithelium we come to something practically dead. This is tolerated because it is gradually led up to, but after all it is not very permanent and is constantly being cast off and renewed. I cannot stop to point out how true it is to say that teeth are but skin appendages ; but will simply point out that in their outer epithelial layer, the enamel, they are all but dead ; that this nearly dead tissue is brought into continuity with the actively live organism by the intervention (i.) of dentine with its tooth-pulp, and (ii.) cementum with its alveolo-dental periosteum ; in other words, in the case of a perfect tooth and its surroundings very highly organized tissues are not asked to tolerate in contact with them that which is practically dead, without the intervention of other tissues less highly organized, so as to bridge over the abruptness of the change.

Comparative anatomy furnishes us with countless examples of teeth which have not a cementum with a highly organized periosteum, and in which the pulp (after once the tooth is formed) retains little or no vascularity nor functional activity. Such teeth are, in their entirety, like human enamel, practically dead ; but like the similar external layers of epithelium of the skin, they are constantly being cast off and renewed ; one might say of them that they were not tolerated long in continuity with the living body.

One of the ways in which dead teeth are lost is by the partial absorption of their roots, which, with coincident demolition of their sockets, leads to their being shed off, like a temporary tooth when its day is done, or like the practically devitalized tooth of the fish or reptile which is, after a brief sojourn, cast off and replaced by a new one.

This, as I shall presently endeavor to show, is one part of the problem how to prevent a dead tooth from being shed.

It may be said that the argument goes to prove too much ; that, like the absolutely unproved electrical theory of caries recently pressed so far, it provides for the certain destruction of all teeth in question ; but this is not quite so. The recent conclusive researches of Heitzmann upon bone, extended by Bödecker to cementum, have shown that there is a protoplasmic network occupying all the canaliculi and lacunæ of living bone and cementum, and that this protoplasmic network entering it from its surface, brings it into an intimate and vital connection with the periosteum ; in dead bone this has utterly disappeared. This protoplasmic network in the cementum becomes continuous at many points, through channels long since described, with the protoplasmic fibres of the dentine : perhaps this connection may be of much practical significance.

A human tooth is therefore brought into continuity with the rest of the organism by two channels ; by its alveolo-dental periosteum covering a great surface, and by its pulp constricted down to one or more small orifices ; and these connections seem to bridge over the gap and render living parts tolerant of comparatively dead tissue. That the periosteum alone may be an adequate connection we know from daily experience of dead teeth successfully treated, teeth which have been knocked out and replaced at once, and teeth rendered practically pulpless by calcification of their pulps, though these are apt to be treated as foreign bodies and cast out by absorption of their roots.

I have recapitulated these anatomical and physiological facts, none of them new, because we need to have them clearly before our minds when considering the causes of failure.

I send round an upper molar which I treated unsuccessfully for weeks, and finally extracted : it exemplifies, in an extreme degree, a condition which I believe to be absolutely hopeless. When it was extracted it was merely rinsed in a basin of water, and never touched since. Everywhere the periosteum had ceased to be adherent to it, and it was, to all intents and purposes, an absolutely foreign body, held in by mere adaptation of its roots to their socket, but without a vestige of organic connection. It was, so to speak, a sequestrum ; the protoplasmic network of its cementum was dead and gone, and, unless I mistake, in no way could such a tooth have been retained for any time. Of that tooth I can give you a complete history. Three years ago, though there was no exposure, I placed a little zinc oxychloride in the deepest portion of the cavity, and filled with amalgam over it. All went well for two years, when pulp irritation came on for no apparent reason. Failing to otherwise allay it, I devitalized with arsenic, experiencing some difficulty in doing so, owing to secondary dentine in the pulp. Contrary to my usual practice, I applied a further application of arsenic after the body of the pulp was dead, when it remained alive only in each of the three roots ; the root pulps were afterwards most carefully and thoroughly removed. It was filled with creosote and wool in the roots, was never absolutely comfortable, was opened up and treated repeatedly, and at last, at the patient's desire, there being some neuralgia, extracted, although prior to its removal there was evidence merely of slight irritation in the socket. There was nothing to lead me to infer the complete detachment of the periosteum, and there was never at any time a vestige of pus formed. I am inclined to think that the arsenic may have destroyed not only the pulp, but have reached the protoplasm network of the cementum. Doubtless we may often have to deal with partial death of this protoplasm, and may then sometimes succeed in retaining the tooth; death of the cement protoplasm on any considerable scale I believe to be an absolute bar to success.

I pass round another tooth,—an upper lateral, the end of the root of which is eaten away in the most irregular way. Such teeth are not uncommon, and there is nothing remarkable about it, except that it was quite impossible to diagnose its condition: It looked a favorable case for ordinary treatment, and was extracted purely on account of the patient's inability to attend. Treatment must, of course, have signally failed, though replantation might have saved it for a year or two, and probably would have done so.

But in this tooth the state of things was very different. Here the apex was the thing affected, and the rest of the cementum with its protoplasm remained practically healthy: and here, so far as it has a point, lies the point of my communication.

I believe that in dealing with dead teeth we have two distinct conditions to combat: the one is abscess at the apex of the root, septic in its origin, and in its results leading, if it has time enough, sometimes to absorption, and sometimes to deposition on the root apices; and the other is general disease of the periosteum, resultant upon disease or death of the cementum.

With apical abscess, taken in hand early, our percentage of success will be very high; when there has been time for change in the hard parts, it will be less complete and the percentage lower; and here, if anywhere, is the legitimate field for replantation.*

Where we have a dead or dying cementum failure, it seems to me, is certain. Since I have thought on the matter in this light, two well-marked cases of necrosed cementum are all that I have seen. In each arsenic had been applied more than once and left several days in the teeth.

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* In these remarks I am, of course, speaking only of teeth the roots of which are large enough to enable us to do all that we wish to our satisfaction; I am leaving out, of course, the failures due to crooked and impervious roots, in other words, to imperfect operations.

There is much room for surmise and still more for observation upon this matter. We do not know in the least what becomes of the protoplasmic contents of the dentinal tubes when a pulp is removed. Do they decompose and liquefy, and, if so, may not their decomposition run on to the cement protoplasm with which they have many communications? Or may not the effect of arsenic travel along them in this direction, as we well know it used to in the other (*i. e.*, towards the pulp) when it was formerly used to allay the sensitiveness of dentine?

If so, we should be very careful to minimize the time of its application and scrupulously keep it out of roots.

Or, perhaps, the dentinal fibrils may not decompose, but may keep up some feeble organic life through their inosculation with the cementum protoplasm. In such a case, should we do well to fill the roots offhand the moment we have removed the remnant of living nerve from the pulp cavity? For it is not to be forgotten that some years ago many practitioners used to do this, and even fill with gold, which now we should do, after days or weeks of creosote treatment, with fear and hesitation.

To recapitulate. I believe that in the treatment of dead teeth we have to combat not only the troubles which arise from the escape of septic matter from the apex of the root, which everybody recognizes, and in a way understands, but also disease of the alveolo-dental periosteum, induced in some other way, which is less frequent but more intractable. If the surmise that the alveolo-dental periosteum does become diseased in other ways than by the escape of septic material from the apical root canal be true, it is difficult to see by what channel evil influence may approach it other than by the protoplasm of the cementum. This again would hardly be reached, except through the medium of the contents of the dentine tubes in the dentine of the root. Such an evil influence may, perhaps, be septic; *i. e.*, the putrefaction of the soft parts of the dentine may poison those of the cementum, and this would seem to be the most likely thing; or the destructive influence of such agent as arsenic may be propagated through the same tissues and bring about similar results in the cementum. In either case we shall have to look to the dentine of the root as the proximate cause of the mischief.

In the absence of adequate positive knowledge, conjecture may sometimes play a useful part. This must be my apology for my imperfect and inconclusive communication.

I have sometimes employed shellac for filling roots which are so fine as to render it very difficult or impossible to fill them with the materials ordinarily in use.

If it is drawn out into fine threads it is flexible and elastic, and will pass anywhere where the very finest hair bristle will pass, at the same time it is brittle enough to break off readily without withdrawal, and so soon as no more can be introduced by the side of that already in, a drop of spirit running up by capillary attraction fixes it and converts it into a very perfect filling even in very small and curved roots. It possesses this one advantage over all other root-filling materials with which I am practically acquainted ; it can be introduced even into the finest root, and a perfect filling made without any danger of a piston being formed to force out septic matter from the end of the root.

A little patience and hot instruments will get it out again from a large root, and I have had to thus remove it, but it would be all but impossible to get it out of a very narrow canal, and hence its use is limited to those cases in which one feels tolerably sure of not having irritation follow the filling. This same objection, however, applies to all perfect fillings in minute roots. I leave wool, of course, out of the question, as it is simply impossible to get it up such roots ; but with shellac roots can be perfectly filled which cannot be filled with any other material with which I am acquainted, not excepting gold wire, as the threads of shellac are easily made of a degree of fineness not readily attainable with a very soft gold wire.

DISCUSSION.

Mr. COLEMAN said it was scarcely possible within the short time allotted to the discussion to do justice to the important points which Mr. Tomes had touched upon He quite agreed with Mr. Tomes that the difficulty in dealing with so-called "dead" teeth was not so much due to the pressure of septic matter through the apex of the fang as to the tendency of the dentine itself to putrid decomposition. In a paper on "The Treatment of Dead Teeth by Arsenic as an Antiseptic," which he had read before the Society several years since, he had called attention to the fact that an offensive condition of the dentine might be removed by the use of this agent, preventing or correcting the decomposition of the contents of the canaliculi. That arsenic so applied could reach so far as to affect the periosteum of the tooth so treated, he was very disinclined to believe; he had used it in hundreds of cases, to cure periodontitis, and had saved the teeth. Moreover, death of the cementum might occur independently of that of the pulp. A gentleman came to him complaining of pain in a tooth which some time previously he had filled with gutta-percha; no cause could be found for the pain, and the tooth was ultimately extracted. The pulp was then found to be quite healthy, but a circumscribed tract of cementum was dead. There was one point on which Mr. Tomes appeared to differ from the conclusions of Messrs. Heitzmann and Bödeker. These observers described a protoplasmic substance as penetrating between the enamel fibres; but Mr. Tomes had spoken of the enamel as dead tissue. He should be glad to hear Mr. Tomes's reasons for his difference of opinion upon this point whilst appearing to agree with these authorities upon others.

Mr. GADDES said that in Mr. Tomes's valuable work on Dental Anatomy there would be found two statements referring to the contents of the lacunæ and canaliculi of the cementum; one was that "it is probable that the lacunæ are filled up with soft matrix," and the other that a lacuna "consists of uncalcified matrix, and in this situation lay the nucleus of the cell," thus negativing the idea of their containing protoplasm. In reviewing Mr. Tomes's book for the *Monthly Review of Dental Surgery* in January, 1877, Mr. Gaddes took exception to these statements, and the ground of his criticism was that if the lacuna and canaliculi of the cementum did not contain protoplasm, and as they knew of no other channels by which protoplasm could permeate the cementum, then the cementum must be dead tissue. But if it was dead tissue, what was meant by necrosis? How could it die if it contained no living tissue? He inferred from Mr. Tomes's remarks that evening that he had seen reason to alter his views on this point since his book was published, but he would be glad if he would state definitely whether this was the case or not. Mr. Tomes had theorized with reference to the case he had related that the arsenic had penetrated through the dentinal tubules, and had reached and destroyed the protoplasm of the cementum, and that this accounted for the non-success of the treatment. But he (Mr. Gaddes) believed that there were cases on record, though he could not at that moment give a reference to them, in which old dead teeth—teeth which had been lying about the workroom for a considerable time—had been implanted into sockets from which carious teeth had recently been removed and had been retained. Such cases had been recorded in the American periodicals some two or three years ago. He could not vouch for the truth of them, but if they were so it would be necessary to find some other explanation than that suggested by Mr. Tomes of the means by which a "dead" tooth was retained.

Mr. HUTCHINSON said that the fact that in Mr. Tomes's case the pulp was found partially calcified suggested to his mind another explanation for the death of the tooth. In such cases the whole tooth was generally over-calcified ; it was too heavy and too solid in texture ; the protoplasm would thus be reduced in amount and probably also in vitality.

Dr. FIELD remarked that Mr. Tomes had omitted to notice one of the most frequent causes of failure in treating dead teeth. It had happened to him not unfrequently to stop several, perhaps five or six such teeth in one patient, and to save them all, whilst in another patient he might have the same number of failures. Failures frequently arose from systemic conditions which the dentist could not combat. He now used nothing but cotton-wool and creosote for root stopping ; formerly, when he used gold and gutta-percha, he had many failures, now these were comparatively rare. In an obstinate case he would fill the pulp-cavity with cotton-wool and creosote, and leave it undisturbed for a week ; he usually found the nerve in the root-canal completely devitalized at the end of that time, but if necessary some of the cotton could be passed into the canal on the point of a fine wire. It had never happened to him to have a tooth killed by arsenic, but he knew it might have that effect if it was left in the pulp-cavity for too great a length of time. When he did use arsenic he never left it for more than twelve hours at a time, and had never found more than two applications necessary.

The PRESIDENT having called upon Mr. Tomes to reply—

Mr. TOMES said he was aware that Bödeker described a protoplasmic network in the enamel, but he (Mr. Tomes) believed it to be rather of the nature of connective tissue, and that it could not be differentiated from the network which was to be seen in epithelial tissues elsewhere.—Although he had not personally verified all Messrs. Heitzman and Bödeker's observations, still they seemed to be so well worked out that he did not think there could be any reasonable doubt of their accuracy. He had not intended to assert that the arsenic had traveled through the dentine ; he had only suggested this as a possible explanation. And it was a fact that in former days when arsenic was applied as an anæsthetic to sensitive dentine, death of the pulp did occasionally result. As to the use of shellac, he had not meant to say that it should always be used; he had found it useful: fine and tortuous roots along which a wire could not be made to pass could be filled with this substance without much difficulty.

The PRESIDENT then requested Mr. Hutchinson to give a short account of his recent visit to the United States.

Mr. HUTCHINSON said that in response to the very kind remarks of the President, he should have much pleasure in giving a short epitome of what he had seen in America, though he would not venture to take up the time of the Society by any detailed account of his three weeks' tour, for during that period he had traversed a distance of 2,500 miles. Suffice it to say that he had seen all the principal cities of the north-east of America, that he had visited eight of the eleven Dental Colleges, that through the kindness of some American friends in this Society he had introductions to the best known men in the dental profession there, and that he had received from them the warmest welcome and the greatest kindness. He had not neglected to call at the various depots so as to be able to bring back any real improvements which had not yet arrived in England, and though he would not attempt to describe all he had seen he thought members would be interested in some instruments which were just being produced by JOHNSTON BROTHERS. These instruments met a real want, for they were cleanly and pleasant to handle, the nickel plating on the handles could not be spoilt by repointing the instruments, since the bits unscrewed, and could thus be readily tempered and returned to their place or replaced by others. It was of course an old form of instrument, but the combination of the new process with the old idea was, he thought, worthy of notice, whilst the cost was but little increased. The second instrument was only a pattern, and was not yet in the market. It was a mallet designed by Dr. Richmond, giving an elastic and dead blow very like that of the hand mallet; it was extremely simple in its working.—Some friends who had seen it privately had complained that the pressure was excessive, but Mr. Hutchinson had put in a weaker spring; he found that he could press the instrument on a piece of card till the trigger was almost released without marking the paper, but the instant the blow fell the paper received the impress of the point. He could not conclude without saying that he was indebted for this mallet to Dr. Northrop, President of the Odontological Society of New York, who had shown him the greatest kindness, and who, being himself a member of this Society, had most flatteringly honored it in the person of its Honorary Secretary.

The SECRETARY then read the report of the sub-committee which was appointed twelve months ago to inquire into the nature and application of plastic fillings.

REPORT OF SUB-COMMITTEE ON PLASTIC FILLINGS.

Your Committee, in accordance with their instructions, have placed in the hands of an able chemist samples of Ash's Improved Rock Cement; Fletcher's White Enamel, and Dental Porcelain; Poulson's Mineral Plombe; and Slayton's Cohesive Felt Foil.

The chemist's reports of experiments made in accordance with the instructions of the Committee,* is as follows:—

Chemical Examination of Dental Cements.

I. *Fletcher's Dental Porcelain, mixed of consistency convenient for use, and kept dry till it was set.*—The analysis of this sample showed it to be essentially pyrophosphate of zinc; it is not, however, a perfect chemical compound, but, in the case examined, a compound of the acid with the oxide of zinc containing a slight excess of oxide of zinc.

The samples also contain a small quantity of insoluble matter, which is evidently silica.

II. This sample had been immersed in water as soon as mixed. The analysis showed that its composition was essentially the same as I., pyrophosphate of zinc, but it contained a less excess of zinc oxide: probably this had been removed on the first immersion in water. No further solvent action, however, seemed to take place with cold water on again subjecting it to that body.

III. *Poulson's Cement.*—This cement, upon analysis, gave very good results, showing it to be pyrophosphate of zinc and a small quantity of silica. It contains, like the others, a slight excess of oxide of zinc, but in much smaller quantities than in the samples of Fletcher's Cements.

IV. This cement, which was placed in water as soon as mixed, had very nearly the same composition as III.

All these samples had small and differing quantities of water in their composition.

V. *Fletcher's Dental Porcelain, mixed as thickly as it could possibly be used.*—This sample consisted of zinc oxide and phosphoric acid, but containing a *very much larger quantity of zinc oxide* than would balance the phosphoric acid. It presented no evidence of being a true chemical compound in its entirety, but might be regarded as zinc pyrophosphate, associated with a large excess of oxide.

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* Mr. Thompson was requested by the Committee to ascertain whether the fillings when mixed formed true chemical compounds or mere mixtures, and to experiment upon their power of resistance to weak acids.

VI. *Fletcher's Dental Porcelain, of convenient thickness*—This was found to be essentially zinc pyrophosphate, with a very slight excess of the oxide, also associated with some combined water.

VII. *Fletcher's Dental Porcelain, mixed very soft.*—Resembled VI. to a certain extent, but contained a much larger quantity of phosphoric acid and water.

VIII. *Fletcher's Dry Chloride of Zinc* (*White Enamel*).—This cement gave numbers which, after deducting the water and insoluble matter, show it to be an oxychloride of zinc.

IX. *Ash's Rock Cement.*—This body does not give such good results as V. The sample examined might be regarded, however, as an oxychloride of zinc and silica, containing an excess of oxide of zinc, of which it contains more than the cement V.

Of these cements, VI. most closely resembles a chemical compound, and quantities something between those contained by V. and VI. would represent such a compound.

All the specimens examined must be regarded as compounds, plus a greater or less quantity of either constituent uncombined.

Action of Acids upon the Cements.

The different samples of cements were individually subjected to the action of dilute solutions of the following acids : Acetic, tartaric, citric, and malic.

The cements were subjected to the action of the same quantity of acids in each case, and for the same amount of time to render the cases as far as possible identical.

The strength of acid used was in each case .001 grammes of acid in 100 CC. of water.

From these experiments it was found that cements I. and III. were very little acted upon : but the cements VIII. and IX. were acted upon to a greater extent.

Of the cements V., VI., and VII., the one least acted on was VI.

The action of the dilute acids took place soon after immersion, and the action was less and less on a second and third immersion. I attribute this to the acid removing the excess of uncombined oxide that the cements contained ; and after that is removed, it does not act upon the nearly true compound that is left.

J. M. Thomson, F.C.S.
Demonstrator of Chemistry, King's College, London.

In addition to this, the members of the Committee have themselves experimented upon several of those substances. In recording the results of their experiments they think it necessary to add that, although the experiments were made with care, and by each of them, they do not afford a basis upon which to form any positive conclusions. The experiments must therefore, be taken rather as suggestive than as conclusive. Most of the fillings were tested by plugs inserted in freshly-extracted teeth, or in glass tubes, and their power of forming a water-tight plug examined by immersion in Draper's dichroic ink. Some were protected till set, others exposed while yet soft to the action of water.

Ash's Rock Cement made water-tight plugs, there being no straining after five weeks' immersion in Draper's dichroic ink ; though one plug in a glass tube, which was kept dry, was loose.

The surface of several plugs was cracked, yet there was less loss of substance by the action of the ink than there was in the cases of plugs made of Poulson's Mineral Plombe when similarly treated.

There was no adhesion to a flat surface of ivory with the saw-cuts left upon it.

Fletcher's White Enamel.—One plug showed slight leakage ; and also one plug made in a glass tube was loose. Other fillings, under similar circumstances, showed apparently neither contraction nor wasting.

There was slight adhesion to a flat surface of ivory with the saw-cuts left upon it.

Poulson's Mineral Plombe.—In Draper's ink the plugs lost substance, and were stained to a considerable depth, showing the porosity of the substance. Three plugs admitted slight penetration of the ink along the walls of the cavities ; one was a failure. In the mouth, four out of twelve plugs showed waste, and the cavities which reached to the gum were not full after six months. Two cavities in one mouth were filled, one wet, the other dry : the wet one deteriorated. One plug immersed in water just after having been made lost much of its surface, and was very rough, but water-tight, as other plugs were.

There was good adhesion to a flat surface of ivory.

Slayton's Cohesive Felt Foil.—Some fillings in the mouth had worn a little, but stood well, and one had proved water-tight six months after its insertion in the mouth. When packed under water the plugs, when removed, could be picked to pieces with the finger-nail, but a more perfect filling was made when packed dry. When capped with adhesive gold there was no evidence of amalgamation with the gold, but there was a distinct amalgamation with non-adhesive gold packed upon it.

The Committee would, in conclusion, submit that the only method of ascertaining the permanent value of plastic fillings is by watching their behavior in the mouth; experiments out of the mouth serving merely as indications by which to render more intelligent our observations in actual practice.

For example, the results of chemical analysis show that we should probably be wrong in endeavoring to mix Fletcher's Dental Porcelain very thick: for its most complete chemical compound would lie between V. and VI.

They would further add, that their individual experience leads them to expect successful results from the pyrophosphate rather than from the oxychloride fillings.

Signed, CHARLES S. TOMES,
S. J. HUTCHINSON,
THOMAS GADDES,
ROBERT H. WOODHOUSE.

The PRESIDENT then proposed a vote of thanks to Mr. Tomes, and to the other contributors that evening, and also to the members of the sub-committee for their valuable report.

This having been carried unanimously, the meeting terminated.

THE SIXTEENTH ANNUAL MEETING OF THE CONNECTICUT VALLEY DENTAL SOCIETY, CONVENED AT THE HAYNE'S HOUSE, SPRINGFIELD, MASS., OCT. 16th, 1879.

[*Continued from November No. of Miscellany, p.* 420.]

EVENING SESSION.

Called to order at 7½ o'clock. President STOCKWELL in the chair.

DISCUSSION OF PAPER, "BACTERIA."

Dr. LESTER L. HADLEY: We live too much upon fine flour; the wholesome portion of the grain is all bolted out. The osseous system gets no support and the disease, caries of the teeth, progresses without interruption. Those who live in a crude state have less disease of every description; they eat coarse food, and the osseous system is supported—the nervous system is unimpaired by tooth decay. I know a lady who thanked God that she was born before nerves were in fashion.

Dr. J. **Allen**, D. D. S., then read the following paper:

ARTIFICIAL DENTURES.

It is generally conceded that America has better dentists, and more of them, in proportion to the population, than any other nation on the globe; they are doing all in their power to stay the progress of the loss of human teeth, with which we are afflicted, and their timely aid has been crowned with unparalleled success. But still, the immense number of teeth that are annually lost causes a great demand for artificial dentures—a large and important branch of dental practice. In the construction of these substitutes, we should approximate as nearly as possible to the natural organs—keeping the mind's eye upon at least three important points to be obtained, viz.: Mastication, enunciation and restoration of the natural form and expression of the teeth, mouth and face. But how to attain these advantages under all the different circumstances we meet with in this department of dentistry, is a problem not so easily solved as many suppose, for artificial dentistry differs widely from any other branch of business pertaining to mechanism.

For example, the mechanic works by well known rules and laws that have been long and well established, and he follows the same routine with his rule, compass and square, that thousands of others did who preceded him, all producing the same practical results. The architect of the present day has the same well-established principles to guide him now that were employed by the ancients.

The different styles of architecture, known as Doric, Ionic and Corinthian, were the favorite orders among the Greeks and Romans in their most palmy days, and these orders, with slight modifications, have been transmitted with mathematical precision to the present time.

Watchmaking is all done by fixed rules, which the workmen have only to follow in order to produce good time-pieces. Thousands of these little wheels are made just alike and placed in cases in precisely the same relative position to each other, and all will serve exactly the purposes intended. Numerous branches of mechanism are successfully pursued by men of moderate capacity, by simply adhering to certain fixed rules and principles in executing their work.

But in the construction of artificial dentures there are no fixed rules to guide the dentist, for he has no two cases alike; therefore, a rule that would apply in one instance would not hold good in another. If he should make a thousand sets of teeth, all just alike, upon one model, he would find but one set out of that whole number that could be worn, and that only by the one person from whose mouth the model was taken. Therefore, instead of working by rule and scribe, as the mechanic does, the skillful dentist is ever devising ways and means to meet the various requirements of each particular case. Let us look for a moment at some of the manifold varieties of cases that occur in dental practice. For example, one set of teeth must be long, another short, another large, another small. One patient requires prominent teeth, another those that recede; some sets should be irregular, others symmetrical; Mrs. Brown requires dark teeth, Mrs. White light ones, and Mrs. Jones a shade between. Miss Prim was extremely well satisfied with herself, until she lost her teeth; and in having them replaced she must have her own natural lovely expression again, or she will be unhappy the rest of her life. In order to produce a pleasing and natural expression of the teeth, they should be in perfect harmony with the other features of the face. It is not always the most beautiful and symmetrical artificial teeth which appear best in the mouth. On the contrary, slight irregularities often secure the most natural expression.

The teeth give character to the physiognomy of persons; therefore, as great a variety of expressions should be given them as there are individuals for whom they are intended. Here the skill of the artist is required in order to avoid an unnatural contrast, that would lead to detection; for, you will recollect, it is the height of art to conceal art.

The dentist who is a true artisan, is not ambitious to have his patient exhibit to casual observation a fine set of artificial teeth, but, on the contrary, the teeth should possess that depth of tone, natural form, and truthful expression which characterize the natural organs—and so conceal their artificial character or even their existence. Varying the *position* of the teeth will change the appearance of the mouth, just in proportion as they differ from the natural teeth. Hence, in many persons having imperfect artificial dentures, their former expression is entirely lost and distortion has taken the place of symmetry.

A want of taste and skill in the construction and adaptation of artificial teeth results in rude and graceless work, which contrasts widely with that of the true artisan who carefully studies the tone, position and expression of every tooth, and restores the harmony which nature had originally stamped upon the features of his patient. A few slight touches of the brush, in the hands of a skillful artist, will change the whole expression of his picture. So with the teeth; a slight inclination, outward or inward, or variation in length, will change the entire expression of the mouth.

Again, the deflection of the various muscles of the face, consequent upon the loss of the natural teeth, presents another class of physiognomical defects, which also comes within the range of dental practice; and the time has come when the dentist is expected to raise the sunken portions of the face to their original contour by artificial means. Whether this could be done without injury to the muscles thus raised, remained a problem to be solved by an American dentist. This question being settled for all coming time, that no injury results from wearing properly constructed dentures, with attachments for this purpose, it has now become a practical and important feature in dental prosthesis. The sunken portions of the face can be raised by means of attachments or prominences made upon the denture of such form and size as to meet the requirements of the various cases that are presented to the practitioner.

In view of the facts here presented, and of what is required of the dentist of the present day, we would urge the importance of a higher standard of qualification in this department than seems to have been attained by a majority of those who are engaged in this branch of our profession. These qualifications may be classified as follows:

1st. Surgical, embracing especially all operations pertaining to the preparation of the mouth and restoring the same to a healthy condition.

2d. Mechanism, or all that which pertains to the manual execution of the work, including impressions, models, dies, plates, mounting of the teeth, etc.

3d. Dental chemistry in general, and especially of the chemical properties of the various substances used for artificial dentures, and the mode of preparing and compounding the different minerals, fluxes, oxides, etc., that are employed in forming dental substitutes.

4th. Metallurgy, including the different processes of working, alloying, and adapting the different metals used in this branch of our profession.

5th. Anatomy, especially of the bony framework, and muscles of the head and face, including the different locations, connections and functions of all the parts which give form and expression to the features of the face.

6th. Artistic qualifications which combine all of the preceding requirements, and constitute the acme and crowning point of the whole.

As the necessity for these qualifications is self-evident in the construction of artificial dentures, we will only dwell for a moment upon the last two named, as they seem to be practically the least understood by many in our profession.

The face, as you are aware, is formed of different bones and muscles, which give it shape and expression. When the teeth are lost, and a consequent absorption of the alveolar processes takes place, several of these muscles are liable to fall in or become sunken, in a greater or less degree according to temperament. And, in order to restore them to their former position, the dentist should be familiar with the form and position of every bone of the face, and know the origin and insertion of every muscle—what ones to raise, and where to apply attachments to the denture—otherwise, he may produce distortion instead of restoration, by underlaying other muscles than those intended to be raised. Here again, the artistic skill of the dentist is brought into requisition. He should study the face of his patient as the artist studies his picture, for he displays his talents not upon canvas, but upon the living features of the face ; an o how much more importance is the living picture which reflects even the emotions of the heart, than the lifeless form upon canvas ! In raising the different muscles of the face, the true artist will carefully avoid producing a stiff, restrained or puffed appearance. He will place the prominences upon the dentures in their proper position, and make them of such form and size as to allow the muscles to rest, move or play upon them with perfect ease, that they may again reflect those sensitive emotions which tell of the inner workings of the mind. Or, to use the language of Shakspeare, " Your face, my Thane, is as a book where men may read strange matter."

Another important consideration in the construction of artificial dentures is, that the materials of which they are formed should be incorrodible and chemically pure. * * * * * * This purity of material we have in the continuous gum-work, when properly made, and none of the materials used are corrodible in the slightest degree in the mouth. Again, all the essential points here referred to can be attained by this mode of constructing artificial dentures. But too much reliance should not be placed upon the mode, for however perfect this may be in itself, artistic taste, skill and judgment are necessary to direct the operator in his manipulations.

Two artists (so-called) may employ the same method, use the same paints, brushes, canvas, etc., in painting a picture. One will produce a perfect prototype of nature, with all the delicate shades and tints peculiar to her art ; while the other makes a mere daub that is worthless.

The same difference exists among men in various other branches of art and science.

In conclusion, allow me again to urge upon our brethren the great importance of bringing into requisition a much higher order of skill in the artificial branch of our profession than has heretofore been shown by a large number of dentists, whose ambition prompts them to do the cheapest, not the best work.

At the conclusion of the excellent paper the doctor said that he had but one patient present with some of his work—continuous gum—and he should ask him to exhibit himself and case. The doctor proceeded to take from his mouth an upper case, to remove which caused him considerable effort. Some of the features of the case were remarkable, presenting a quantity of porcelain at each side of the plate for the purpose of restoration.

Dr. E. M. GOODRICH, Westfield: I move that the discussion of the foregoing papers be postponed, and that Dr. Shepard's case of irregularity be taken up. The patient and models are present. Carried.

Dr. SHEPARD presented models taken before any treatment was attempted by him. He read some interesting and instructive correspondence between Dr. Goodrich and himself in reference to the treatment of the case. He also exhibited a series of models with appliances showing the development in the treatment and the improvement constantly gained during the treatment of the case. It was considered to be remarkable that such an improvement could have been gained, there being over one hundred miles between the Professor and his patient during the year or more that the latter was under treatment. They would meet at the office of Dr. Shepard not oftener than once a month. The patient was still wearing an appliance.

DISCUSSION OF PAPER, "ARTIFICIAL DENTISTRY."

Dr. SEARLE: A good deal may be said of this paper and about the deformity occasioned by artificial dentures. I am disgusted with the teeth of the present day. Not much can be done with the teeth in our dental depots. There is no *restoration* possible with *them*. The work looks second-handed, and I don't say this of other dentists' work more than of my own, having to use, as we all do, "*ready-made*" teeth. A man would starve here, in the country, trying to do a better class of work similar to Dr. Allen's. We must use *machinery* teeth, drawing on our imagination for admiration of them. I am getting more and more disgusted with these cast-teeth every day. Old Mr. B. has young Miss B's teeth, .and old Mrs. N is wearing a set suitable for a miss of eighteen years. I don't know how the evil can be remedied ; but to select from the mass what is needed in ordinary cases is a trying and laborious piece of work. To do away as much as it is possible with the artificial look, these cast teeth should be used singly, and not in blocks.

Dr. Beals : One thing Dr. Searle speaks of, he seeing a case of teeth in an old man's head that belonged to a young person. This is a want on the dentist's part of artistic skill. I have seen much artificial work with these "machinery teeth" that is very natural.

Dr. Searle : What per cent ?

Dr. Beals : A very large per cent. I made a set for a Mr. Browne, of Deerfield. He was sensible enough to want a *natural-looking* set of teeth. When he came around I put in a selected set, and in about a year he came again and wanted a duplicate set. I could not have given them to him had his first case not been of "machinery teeth." The molds existed, and I made him another case. These teeth *do* look *natural* in some cases. We must conform to the conditions and circumstances of each case. There is very much in the *adjustment* of these teeth.

Dr. F. Y. Clark : Dr. Searle has made some good remarks. It is about as he says, that the teeth can be detected as artificial. But I wish to call your attention to something else of importance : The evil that is being done by this wholesale extraction of teeth is not realized. It is a positive fact that the Americans have not the room in the arches that the Europeans have. The African has from one to one-and-a-half inches more room than we have. I frequently meet with people who have these lacking conditions and deformities resulting (congenitally) from this extraction of teeth. We shall have no teeth by-and-by. Dr. Shepard's case will be seen in worse form in the future if this practice is not stopped. *New bone* must be found, and stop this wholesale extraction of teeth. Dr. Allen has done much good to be sure, but on the question of expense alone, it is to be considered, $300 is too much for very many to pay for any character of dental service.

Dr. Beale : What will you do with people who have no $300 or even $50 to have them saved ?

Dr. Clark : A lady came to me whose teeth could be saved, but she was afraid that it would cost her too much to have them saved ; I told her I would fill her teeth for one-half the cost of artificial ones, and I did so.

Dr. Beals : Quite a number wear them who pay *nothing* for them ; I have a mixed patronage. What will you do with poor people who get but fifty cents a day, and yet are in *need* of artificial teeth ?

Dr. Allen : I would answer that question in this way : A great many think that a *set* is a *set*, whatever the cost, and it is as reasonable as to say that a dress is a dress, and that there is no use of paying $100 for a dress when one can be had for $2.50. There is no reason to suppose that a poor person can have the best dress, or teeth, but the rich and well-to-do *can* have the *best*, and not the *poorest* work.

Dr. Beals : I agree with Dr. Allen exactly ; I did not mean to be understood as to say that a rich person should put up with a poor article, what I said was in reference to the poor and medium classes, particularly the poorer class.

Dr. N. Morgan : We all find in block teeth a great difficulty in getting what we need for each case. Our study of a case decides us in favor of a certain set, and, as we proceed in grinding up, unforseen difficulties arise sometimes ; there will be too great fullness of the gums, and this is the trouble in very many cases. Some dentists will commence to grind up on a case, and yet they will not discard the teeth and select something better, even if satisfied of their mistake in selecting them—thus unsuitable work is inserted many times.

Dr. Beals : In regard to artificial dentures, I have frequently had patients come in who wished *handsome* cases of teeth ; I would select what I thought was suitable in each case, and, with such people, the reverse of what was correct would be wished for. A lady came to my office not long ago and selected a milk-white set. I told her that I had had them in the office for ten years, and that I should not put them in for any one ; finally, I had the pleasure of putting in for her a correct case.

Dr. Allen : I selected in a certain case what I thought to be suitable, but the lady declared that they were altogether too dark. After some considerable argument, I got her consent to what was right in the case. It is very often that they will dictate, and it is often more the patient's fault than the dentist's where inappropriate teeth are inserted, he being desirous of pleasing. A lady in Quebec, who had a case that I put in for her, leaving it all to my discretion, had the satisfaction of having a *natural looking tooth*—so declared by all her friends when she got home.

A motion was here made, and carried, that Dr. F. Y. Clark exhibit his "New flasks for gold work." They were produced, and the doctor said that he had used for his impressions equal parts of silex and plaster, but, after experimenting, had found the best result from using plaster and sand, two-thirds of the former with one-third of the latter. The impression, after removal from the mouth, was imbedded in plaster and sand—equal parts in a shallow flask. After setting, it was thoroughly dried out over the fire while the zinc for the male die was heating. After drying, a deep flask corresponding in size with the smaller one, was attached to it, and the metal poured. The lead for the female die was melted, the shallow flask and impression tray was drawn from the zinc die, another flask attached, and the female die was cast. The plan was not only more simple and expeditious, but the slight shrinkage of the zinc in pouring thus directly into the impression, caused the production of a beautifully close-fitting plate. He used no gauge for gold plate—could tell with his fingers the thickness of plate desired ; he did his own roll-milling, and the last time he put through the rolls he would place on it an oak leaf, a piece of linen, or piece of fine screen wire. The impression of any of these will be perfectly stamped upon the plate, thus leaving a rough surface. He found that a rough surface was better upon the palatine surface of the plate than an air-chamber, in many cases, and it was better in all cases than a smooth surface next the pelate.

Adjourned till 9 o'clock A. M., the 17th instant.

SECOND DAY.—MORNING SESSION.

At 8:30 A. M., previous to coming to order, Dr. J. N. DAVENPORT, of Northampton, illustrated his new method of repairing rubber-plates. It consisted of the ordinary preparation of the plate, but without dove-tailing at all, using the rubber without any previous waxing-up or flasking the case first. After thoroughly packing, the case is imbedded in plaster, and the expansion of the rubber in heating up will cause all the interstices to be filled. Strengthening wires of German silver were sometimes used.

Called to order at 9:15 A. M. President STOCKWELL in the chair.

Motion was made by Dr. Searle that the time for the election of officers be changed from the first day to the first session of the second day. It was discussed by Drs. Beals, Howland, J. S. Hulbut, C. S. Hulbut, Noble, and Prof. Shepard.

The motion, as amended and carried, was as follows :—

That the hour of 11 o'clock A. M., of the second day, be devoted to the election of officers.

This motion shall come up before the next meeting as an amendment to the constitutional by-laws.

(Dr. F. Searle's paper, "Odontologia and Diagnosis)."

DISCUSSION OF PAPER, "ODONTOLOGIA AND DIAGNOSIS."

Dr. **Miller**: I would ask what the doctor uses to obtain sensitive dentine?

Dr. **Searle**: I don't know that it is worth while to go into the matter of treatment. Whatever each one *knows* of treatment he must apply understandingly in each case: the paper referred to diagnosis and prognosis more than to treatment.

Dr. **Miller**: Preventive treatment is better than curative.

Dr. **Clark**: I should like to understand the paper in some points.—You speak of exposed nerves in teeth and your treatment of them. Do you always destroy exposed nerves?

Dr. **Searle**: I avoid it, as a general rule, where I feel comparatively sure of a good result. I think our knowledge of conservative treatment of the pulp very uncertain, and, though I adopt this treatment where I can, I must say that my faith in it is very dim.

Dr. **Clark**: Dr. Searle's speaking of the incorrect use of terms reminds me of some very incorrectly applied terms in our text-books that should be discarded. The term "Sixth Year Molar," is incorrect, it *should be* First Permanent Molar. We hear so much about *fangs* of teeth. Teeth have no *fangs!* Serpents have fangs! Teeth have *roots*, and they should be so termed.

Dr. R. A. **Fones**, Bridgeport, Conn.: I think that conservative treatment of the pulp is failing in efficacy in many of our cases. The result of this treatment is not so good as it promises to be at the first setting, and subsequent to capping. The methods of our patients as to cleanliness and healthful diet may be good, still, in many cases where nervous power is impaired—as in the case of growing children at school, hurried along in their studies as they are—as a result of excessive mental labor and overstudy the recuperative system is exhausted. Such conditions are against capping of exposed pulps.

Dr. **Searle**: I wish to enforce my statements in regard to the impossibility of removing the entire pulp tissue—that the infinitesimal amount in the canals is not entirely removed.

Dr. **Miller**: I find now that many use oxychloride of zinc in capping pulps without any preparatory treatment. There is less likelihood of success in the conservative treatment of the pulp by this means. I use a batter of the oxide mixed with creosote: *first*, take up the excess of creosote and then use the cement.

Dr. Clark: Why do you use creosote or its twin brother carbolic acid? Because it is good! Caries is caused by bacteria; creosote or carbolic acid is used to devitalize that bottom layer of soft dentine containing bacteria. You will all think just as I do one of these days. In capping pulps I should not use full strength carbolic acid, I should dilute it somewhat, and if there was pain in operating about the pulp, or great sensitiveness, I should use some of the essential oils first. The extent of exposure being to a great extent my guide in the treatment, whether it is to be conservative or heroic, and I must say that I think I generally succeed in saving pulps. I believe in the conservative treatment of the pulp before inflammation begins.

Dr. Miller: I have often heard it advocated in our conventions that in capping we should leave that leathery portion of the dentine, it being a better protection than anything else, under the cement.

Dr. Clark: In regard to the action of the oxychlorides, I think that pulps are more often killed from its use by the hardening of the bottom layer of dentine over the nerve, than from any action of the chloride zinc.

Dr. R. A. Fones: We should use something over the pulp that will resist pressure. A substance that will not of itself infringe on the nerve

Dr. Searle: In recent exposures bear in mind this principle in your treatment: Unless you prevent acute pain and inflammation, trouble is certain to occur sooner or later.

Dr. Allen: I should like to speak to you at length upon this interesting subject, but I must get to the train, and if I get to talking the cars will leave for home without me. There are three stages in pulp disease. The first irritation; the second inflammation, and the third is suppuration. I have ever felt a doubt in saving pulps where there had been inflammation of them, and I had capped them. I don't believe that it can be done except in few cases. Where there is inflammation of the nerve my course is to take a small piece of cotton, saturate it in creosote, take up a little arsenic and lay it on the nerve; after a proper time has elapsed, I take a barbed broach and remove the whole pulp, carefully treat and fill the tooth; thus I feel safe in saying that the tooth is safe. Now, gentlemen, just one remark and I must go: I have enjoyed this meeting very much; I have heard more sound argument and good sense than I have heard at a dental meeting for some time. Your way is onward, *sure!* and *upward* too. In bidding you all farewell, I hope to meet you all again.

Dr. CLARK : Some weeks ago I had no idea of coming here. I met two members of your Society at Saratoga, at the Convention there, and I was invited by them to attend. I have been benefitted greatly by your meeting, and I hope to meet you all again.

Motion was here made that both Drs. John Allen, of New York, and F. Y. Clark, of Savannah, Ga., be elected to honorary membership with the Society. Carried unanimously.

Dr. J. S. HURLBUT, Chairman of Committee on Membership, reported favorably upon the names of Dr. R. A. Fones, of Bridgeport, Conn., and Dr. C. Frank Bliven, of Worcester, Mass., and they were duly elected to membership.

(Dr. C. T. Stockwell's paper, "Constitutional Conditions and Treatment, as related to the Practice of Dentistry," will appear in next issue of *Miscellany.*)

DISCUSSION OF DR. STOCKWELL'S PAPER.

Dr. SEARLE : I am impressed by this paper of the importance of a good medical education to the dental practitioner. I hope the time will come when we all shall be educated physicians. We should recognize the necessity of a thorough knowledge of medicine ; we may not be graduates of it, and yet be acquainted with the subject. I question the capability of any of us treating constitutionally. Patients will not admit of our encroaching too far upon general medicine, and we cannot state our own limit in this direction without knowledge.

Dr. F. A. FONES : There should be more attention paid to *preventive* treatment. The pressure upon children and young people at our schools is too great, and it has a degenerative effect upon the teeth. Our schools are, in one sense, hot beds of disease, producing exhaustion by crowding the scholars in their studies. They are advanced too rapidly for the health of their nervous systems.

At this stage of proceedings the subject of the recent death of a patient of Dr. G. F. Waters, of Boston, was taken up.

Prof. L. D. SHEPARD, of Boston, characterized the treatment received by the profession at the hands of the press and medical fraternity as simply outrageous ; that the allegation of poisoning with arsenic from a tooth treatment was utterly false. The Professor said that the doctor had advocated and practiced the capping of exposed pulps for the past twenty years; that his treatment of this case was simple, and that as the patient was going the next day to Brooklyn, he advised him to call upon a prominent dentist there for further treatment. Dr. Shepard believed the cause of death to have been from the infiltration and absorption of pus, from an abscess that formed subsequent to the treatment of either of these dentists. He further said that admitting, for the sake of argument, that arsenic was used, it could not *per se* cause such a result, however careless the administration of it. The amount used for this purpose never exceeding 1-40th to 1-30th of a grain, and 1-10th of a grain is considered a sure internal dose.

A committee, consisting of Prof. L. D. Shepard, of Boston, Chairman, Dr. C. A. Brackett, of Newport, R. I., and Dr. E. S. Niles, of Boston, were chosen to wait on Dr. Waters, obtain the facts in the case, and report at the next meeting.

(Dr. A. M. Ross' paper, "Dental Caries and Some Modes of Treatment," will appear in next issue of *Miscellany.*)

On motion, the Treasurer's report was accepted.

Adjourned, subject to the call of the Executive Committee.

A. M. ROSS, *Secretary.*

HEARING WITH THEIR TEETH.

EXPERIMENTS WITH THE AUDIPHONE ON A CLASS OF DEAF MUTES.

The audiphone, a new instrument designed to enable the deaf to hear, was tested lately, at 41 East Twenty-second Street, in the presence of Dr. Peter Cooper, the Rev. Drs. Thomas Gallaudet and J. M. Stevenson, the Rev. Robert Collyer, Prof. Jenkins, of the Institution for the Deaf and Dumb, Mr. Henry Bergh, and many others. Prof. Jenkins had with him a class of mutes.

Richard G. Rhodes, of Chicago, the inventor, said that he had been deaf for a number of years, and that he discovered the principle of the audiphone by accident. One night, after making fruitless experiments, with the view of finding some way of hearing his watch tick, he listlessly touched the case of the time-piece to his teeth, and he was surprised to find that its ticking was distinctly audible to him. This discovery led to the invention of the audiphone.

The instrument has the shape and size of an ordinary stiff fan, and it may be used as such. It is made of a composition said to possess the property of gathering sounds and conveying the sensation to the auditory nerve through the medium of the teeth, the external ear having nothing to do with hearing in this manner. The material resembles gutta-percha. Small cords, running from the thin edges and converging at the handle, serve to bend the blade of the instrument to the proper curve for hearing to the best advantage under different conditions. When in use, the edge of the thin curved blade is touched to one of the upper teeth.

The mutes tested the audiphone. A young man who had been deaf from infancy heard words spoken in the tone of ordinary conversation. A little girl, who was born deaf, indicated by signs and looks of surprise, that she heard the sound of voices; but having never before heard any sound, she did not know the meaning of the words. Instruments were placed in the hands of the entire class, and a lady sang, accompanied by an organ. At the sound of the first notes the faces of the mutes expressed great surprise, and when the voice of the singer rose and fell, and the harmony of the accompaniment blended with the voice, the pleasure of the mute listeners was manifested. Their faces lighted up, and their hands moved up and down as the pitch of the air rose and fell. Some of the mutes waved their hands in a peculiarly graceful movement to show that they could distinguish between the volume of the crescendo passages and that of the less loud portions.

The inventor claims that totally deaf persons may be made to hear ordinary conversation by the use of the audiphone, and that they may then be taught to speak.—*New York Sun.*

A FEW REMARKS ON TARTAR AND ITS REMOVAL.

BY J. HENRY REDMAN, D.D.S., BRIGHTON.

It is needless for me to describe the composition of Salivary Calculus, as that is so fully done in all text-books of Dental Science, but in none is sufficient importance attached to its removal. No lesion to which the teeth are liable, with the exception of caries, causes the loss of so many, as this concretion, which, in the first place, is deposited at the necks of the teeth, just under the free margin of the gum, on the lingual surface of the inferior incisors and the buccal surface of the superior molars; the gums are forced back by the accumulation, forming a lodgment for further depositions ; it collects most rapidly at the part nearest the gum: this no doubt gave rise to the idea entertained at one time, that the tartar was produced by the mucus follicles ; but it has been proved beyond dispute that it is deposited from the saliva. At first it is very soft, owing to the presence of a large proportion of animal matter, viz. : mucus, &c., but after it has remained on the teeth for some time, it becomes very hard and brittle, its character being altered by a preponderance of calcareous salts.

The constant deposition of tartar causes absorption of the gums and afterwards of the alveolar processes, until the teeth become so loose from the loss of their proper support as to be such an annoyance that their extraction is demanded. Its presence, even in small quantities, acts as a perpetual irritant, exciting inflammation of the gums, which cannot be successfully treated until the cause is thorougly removed.

The state of the health has a great influence on the accumulation of tartar, it being very abundantly deposited in those of a rheumatic or gouty tendency. Diet and modes of life, so far as they affect digestion and assimilation, will influence the deposit, as will also the administration of certain medicines. In limestone districts, where the water becomes impregnated with lime, tartar will, as a rule, be deposited much more rapidly and in larger quantities than would be the case where the water was soft and free from lime salts.

The operation for the removal of tartar is one of the most important in conservative Dentistry, although it is considered by a great many of but secondary importance, and by others of such little consequence as to be entirely beneath their notice ; I have even heard it asserted by men who, from the training they have received, should know better, that because it fills up any cavities there may be in the teeth, it tends to preserve them, and that its removal, instead of doing good, is a positive evil; there could not be a more erroneous idea. Although in those mouths where the tartar is most freely deposited, decay generally progresses at a very slow rate, yet the loss of the teeth is inevitable unless it is removed. The operation of scaling is generally very hurriedly and imperfectly performed, but to be successful, it ought to be done in a most thorough manner, not only going over every portion of the tooth exposed, but passing the instrument below the margin of the gum to remove every particle, as unless this is done, a nucleus is left around which future deposits can take place. In cases where large accumulations have to be removed, it is necessary to give a second appointment, or even more, as the bleeding arising from the operation (although every care may have been taken to prevent unnecessary wounding of the gum) will obstruct the view, making it almost impossible to successfully complete the scaling in one sitting. In these cases the gum is generally pouched, each pocket should be cut vertically with a sharp lancet to cause contraction, as if this is not done, a lodgment is left for particles of food, &c., over which the tartar will soon accumulate again, making our labor nugatory. If the pouching is but slight a little strong astringent or slight caustic inserted between the gum and tooth will accomplish the desired object. For this purpose I have found nothing answer better than chlorine of zinc solution.

The instruments used are often of the most rude description, totally unfit for the delicate work they have to perform; those I find most useful are Dr. Baylis's set of scalers, Dr. Howe's set of fine scalers, and Nos. 3, 4, 5, and 6 of Dr. F. Abbott's set. For the removal of tartar and for freshening the edges of the alveolar process in cases of pyorrhœa alveolaris, Dr. Rigg's instruments are simply invaluable. After every particle has been removed, the teeth should be polished with precipitated chalk on a small circular brush, rotated by the Dental engine. I object most strenuously to the use of levigated pumice or powders of a like character for this purpose, as they scratch the enamel, leaving it rough instead of polished, from which cause the teeth readily discolor and are with difficulty kept clean. After the teeth have been scaled they are often very sensitive at the necks: if kept well polished this will pass off in the course of a few days; much relief, however, may be obained by the use of a mouth-wash composed of a few drops of Eau de Cologne and tannin in water, two or three times a day.

By the vigorous use of the tooth-brush at least night and morning, and the daily passing of thread or China ribbon between all the teeth, they may be kept entirely free from the accumulation of tartar. A mechanical polishing powder is all that is required as a dentrifice, and for this purpose nothing can be better than precipitated chalk. If medicaments are required for the treatment of diseased conditions of the gums, they should be given in the form of mouth washes, I think their employment in the form of powder is not only useless, but in some cases detrimental.

Great care should be taken to see that all instruments used are properly cleansed and disinfected, by first washing and then dipping in a solution of carbolic acid or permanganate of potash; as in no operation that we are called upon to perform is there more danger of communicating disease from one patient to another than in this that we have had under consideration.—*British Jour. of Dental Science.*

NOTES.

The Pittsburg Dental Association.

At a regular monthly meeting of the Pittsburgh Dental Association, June 10th, 1879, the following resolutions were unanimously adopted :

WHEREAS,—The profession of Dentistry now suffers, and has suffered in the past from the empiricism of many of its practitioners, and

WHEREAS,—The dentist occupies the position of a public teacher, his education should be such as to enable him to give a satisfactory and scientific reason for what he does, or proposes to do; therefore

Resolved,—First, That an applicant for the position of student in the office of any member of this Association, shall be not less than eighteen years of age, be of good moral character, and shall furnish satisfactory testimonials of the same.

Second, A diploma from any Chartered Literary Institution, shall be deemed sufficient evidence of an applicant's preliminary educational qualifications:

Third, The minimum preliminary educational qualifications shall be a thorough knowledge of Orthography, Reading, Writing, Arithmetic, Grammar and Geography, together with a knowledge of the Latin Grammar, and ability to read and translate a selection from any of the first five books of Cæsar's Commentaries.

Fourth, That an Examining Board, composed of three active members of this Association, be elected at each annual meeting. The duty of said Board shall be to examine all applicants for admission, as students, to membership of this Association. After examination of an applicant, each member of this Board will be entitled to ten votes, the applicant to receive twenty votes to entitle him to become a student.

W. F. FUNDENBERG, M.D., *Pres't.*
H. W. ORR, D.D S., *Sec'y.*

American Academy of Dental Science.

The Annual Meeting of the American Academy of Dental Science was held on Wednesday, October 29th, at Hotel Brunswick, Boston.

The Annual Address was delivered by Dr. C. A. Marvin, of Brooklyn, N. Y.

The following officers were elected for the ensuing year :

President, J. L. Williams ; Vice-President, T. H. Chandler ; Recording Secretary, J. T. Codman ; Corresponding Secretary, C. P. Wilson ; Treasurer, L. D. Shepard ; Librarian, H. F. Bishop ; Censors, E. G. Tucker, G. T. Moffat, F. N. Seabury.

C. P. WILSON, *Cor. Sec'y.*

Resection of Bone with the Dental Engine.

It is a very current opinion that the "Dental Engine" will, in the future, play an active part in the domain of operative surgery ; and as we had an opportunity, a few weeks ago, of testing its efficacy, I wish to make a short report of the case.

Lula Spencer, white, four years of age, was brought to Dr. McGuire, in April, by Dr. Batt, of——— County, Va. The following history of her trouble was written by her mother for me : "The little girl was born in 1875. Owing to a deformity in her ankle, she did not walk until she was two years old. Six months after she began to walk, while playing out in the yard with a chair, it fell on her ankle and broke it. She remained in that state until the 20th of April, 1879, when she was carried to Richmond to be under Dr. McGuire's care." When she was admitted into the "Retreat," her foot and ankle were bent back under her leg almost at a right angle. The bend corresponded with the junction of the dyaphysis and epiphysis. The union which had resulted was too firm to admit of the legs being straightened, and the only alternative was to remove a V shaped piece of bone from the front of the tibia and fibula over the site of the fracture. With the assistance of Dr. Thomas Pleasants, who furnished the dental instrument, the section of bone was easily and quickly removed. It required some care to protect the soft parts from the revolving saw. This, I think, was the only difficulty with which we had to contend.

The operator handles and guides the edge of the saw with as much ease and delicacy as he would the point of a pen or scalpel. With it, a clean, smooth cut can quickly be made through the hardest bone, and without leaving any pieces of bone to exfoliate and work their way out. With drills, trephines and circular saws, and knives of different sizes and shapes, the application of this instrument will be almost unlimited.—*Va. Med. Monthly.*

The Oldest Lecturer in Europe.

The veteran chemist, Chevreul, whose name is associated with researches on fats and fatty acids, now in his ninety-third year, began, we read, his usual course of lectures on organic chemistry at the Museum of Natural History at Paris a short time since.—*British Journal of Dental Science.*

QUERY.—Will some one give their experience in the use of "Chromic Acid" for destroying pulps.

F. A. W.

MY DENTIST.

Who seats me in his easy chair,
And hurts me more than I can bear,
And pulls my tooth, and doesn't care?
My Dentist.

Who lascerates my gums with files
Of different shapes and different styles,
And coolly takes them out and smiles?
My Dentist.

Who twists my lower jaw awry,
And sticks his thumb into my eye,
While seeking cavities to spy?
My Dentist.

Who thrusts the steel deep in my tooth,
Which makes me howl—and then forsooth
Tells me "The nerve's exposed, in truth?"
My Dentist.

Who, when the teeth are filed and ground
And tender orifices found,
Puts in a burr and twists it round?
My Dentist.

Who always finds a tooth to fill,
A root to pull, a nerve to kill,
And then sends in his "little bill?"
My Dentist.

STEEL RUST.—According to the *Chemiker Zeitung*, articles of steel which have become rusty may be cleansed by brushing with paste made up of 30 parts of cyanide of potassium, 30 parts curd soap, 60 parts of precipitated chalk, and a sufficiency of water. Great care is required in preparing and using this poisonous mixture.

H.R.Abbott
Mem.Lib.

Author

Title Johnston's Dental Miscellany, 1879.

Harry R. Abbott
Memorial Library

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